ABSTRACT

STRUCTURE IN DIVERSITY: VARIATIONS IN PRODUCTIVITY AND EFFICIENCY IN INDIAN AGRICULTURE

By

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This is a study of the economic life of Indian cultivators. The problem posed is the marked variations in agricultural productivity and efficiency found across and within cultivating groups distinguished by unequal control over productive resources. It is in part a methodological problem, how to explain distributions rather than just aggregated averages. The problem is not one of unlimited variation, but rather the discovery of limits or bounds of tolerance, the properties of the system which allow or disallow variability in agriculture performance.

In the approach, an economic field and its relationship to other domains of socio-cultural life are defined and explored. Economics is not seen as a separate, discrete entity and this relationship helps explain features in the economy and why variation occurs. The aim of the study is to discover the structure which underlies surface appearances, that there is structure in diversity.

The study is micro-level, focusing on two villages in different districts of Rajasthan state, India. Basic economic features of distribution and organization are examined within the context of broader

levels of integration, e.g., markets and government development programs. Data were collected by survey research from a randomly selected ten percent sample stratified on the basis of landholding size. Other information was collected through participant observation and unstructured interviews.

Variation is associated with both "traditional" peasant agriculture and commercial farming. Although both villages are affected by development programs, variation was present prior to the introduction of new agricultural techniques and is not simply a reflection of innovation lag.

Differences in access to resources partially explains such variations. Of greater interest, however, is the problem of variations which exist among cultivators having equal access to productive resources. Where it is possible to hold opportunity constant, the problem is one of explaining why some allocate their resources more efficiently, are more productive and change their production strategies to take advantage of new opportunities whereas others do not. The problem is particularly difficult if one starts from the assumption of "rationality," operationalized more often than not in the economic context as an inherent disposition for individuals to maximize material gain.

In the approach used in this study, economic behavior is influenced not only by individual predilections, but also by the environment of socio-economic relations. It is affected by the nature and distribution of resources and socio-cultural organization centering on production. Social relations, obligations, values and understandings also affect commitments to material ends and compete for the allocation of productive resources. Production strategies and thus productivity and

efficiency are not solely determined by potential return, but also by ideas of what is sufficient, desirable and necessary -- subjectively defined by actors within their own context -- and competing demands on their resources arising from the society in which they live. The problem is turned around from investigating the "rationality" of cultivators from an outside "objective" perspective to examining the range of alternatives they have and their response to it.

This range of production alternatives is bounded by a system of constraints and incentives. If cultivators depend only on agriculture (which few do), this is ultimately constrained at one end by the greatest return possible with the most productive and efficient use of resources. At the other end the constraint is the minimum return necessary to sustain and maintain the cultivating household. In some cases these constraints are close together, in which case cultivators must make the best use of their resources simply to survive. Other cultivators with more resources have wider latitude. They may have a large number of alternatives, not all of which approximate the greatest return, but provide a level of satisfaction.

What comes out in the study is a distribution of production strategies. At one end is peasant subsistence agriculture. At the other is commercial farming. There is not, however, a simple correlation between distribution of resources, strategy pursued or levels of productivity and efficiency. There is, rather, a mix with many permutations. Given the alternatives most cultivators have, they can either be productive or underproductive, efficient or inefficient.

There is little to channel production behavior into a uniform pattern. The only absolute demand that must be met from agriculture is

food to provision the household (and this is conditioned by other sources of income). This can be met with a peasant strategy outside the monetized market context. Variability in levels of production and efficiency reflect different consumption requirements of households and the various ways in which they can be filled. The only obligation a cultivator has is to fall somewhere within a range of viability, not operate at a loss and provide for some minimum level of consumption satisfaction.

STRUCTURE IN DIVERSITY: VARIATIONS IN PRODUCTIVITY AND EFFICIENCY IN INDIAN AGRICULTURE

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A DISSERTATION

Submitted to

Michigan State University

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

Department of Anthropology

1976

To my parents

Roy and Lucille Michie

ACKNOWLEDGEMENTS

There are many to whom I owe a great debt of gratitude for guidance in the preparation of this study. My committee chairman, Charles Morrison, and committee members, Harry Raulet and Kenneth David, have given much in time, discussion and encouragement. Their help on various drafts and clarification of issues and ideas are greatly appreciated. Former members of the committee who have left the university also helped formulate the problem and approach: Ralph Nicholas, Scott Cook and Leonard Kasden. Special thanks go to Ralph Nicholas for encouraging me to enter anthropology, a decision I have never regretted. Special thanks also go to Bernard Gallin, Chairman of the Department of Anthropology, for his interest and support throughout my program. Though I am grateful for their kind assistance, full responsibility for this study and the ideas contained herein are my own.

Field research was supported by a Junior Fellowship from the American Institute of Indian Studies. Shri P. R. Mehendiratta, Director, American Institute of Indian Studies, New Delhi, and his staff were very hospitable and supportive of both my own and my wife's projects. I especially appreciate having worked through this fine institute. I also thank members of the Statistical Laboratory of the National Council of Applied Economic Research, New Delhi, under the direction of Shri B. K. Mitra for their patient assistance in processing data.

Affiliation and sponsorship were provided by the Department of Sociology, University of Rajasthan, Jaipur. I am extremely grateful to Professor T. K. N. Unnithan, Head of the Department of Sociology for providing affiliation and assistance while in the field. The hospitality shown by he and his wife will always be remembered. Shri Nirmal Singh, Department of Sociology, was also very helpful in implementing my project and discussing fieldwork as it progressed. Shri K. C. Pande of the Social Sciences Research Centre and Shri P. C. Mathur and Professor Iqbal Narain, Department of Political Science, were also very helpful. Special thanks go to Professor C. P. Bhambhri, now at Jawaharlal Nehru University, New Delhi, for his help in facilitating our association with the University of Rajasthan. The warmth of hospitality extended to both of us is most appreciated.

The University of Udaipur, Department of Extension Education, gave invaluable assistance for field work in Bharatpur. Dr. D. K. Mishra, Shri M. S. Lodha and Shri Godhara took an active interest in our research and Shri Godhara took time out from his busy schedule to help survey possible field sites and introduce us into "Shivpura."

Extension personnel in both villages were extremely helpful in discussing programs and local conditions. Patwaris gave unstintingly including long lectures, in clarifying land tenure systems and helping draw up sample lists. Their assistance helped greatly to cut down the otherwise lengthy spade work.

Perhaps most thanks go to the people with whom we had the good fortune to spend our time in the field. The openness of informants was especially appreciated as was their good humored patience and interest in my lengthy questions about their affairs. In both villages the

warmth of friendships will never be forgotten. The most difficult part of field work was having to leave.

A continuing debt is owed Kusum Nair who as friend, mentor and mother-in-law has helped immeasurably in formulating issues and ideas. It was through her encouragement that I chose the topic of this study. Her career in rural studies and wealth of experience have been an invaluable aid in my efforts.

Final thanks are to my wife, Aruna, with whom I was fortunate to have conducted field work. While doing her own concurrent research and writing, she has given much support to mine and has provided a greater insight into the subject than I would have achieved on my own. Our long hours of discussion and argument of points have added much to this study. I also owe her greatly for editing and typing of my defense draft, as I do to Judy DeJaegher for typing this final copy.

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INTRODUCTION

This is a study of the economic life of Indian cultivators.* The problem posed is the marked variations in agricultural productivity and efficiency found across and within cultivating groups distinguished by unequal control over productive resources. It is in part a methodological problem, how to explain distributions rather than just aggregated averages. The problem is not one of unlimited variation, but rather the discovery of limits or bounds of tolerance, the properties of the system which allow or disallow variability in agricultural performance.

In the approach, an economic field and its relationship to other domains of socio-cultural life are defined and explored. Differences in access to resources partially explains variation, but controlling for differential access, social and cultural features also affect production behavior. Economics is not a separate, discrete entity and this relationship helps explain features in the economy and why variation occurs. The aim of the study is to discover the structure which underlies surface appearances, that there is structure in diversity.

This study has its origins in the author's general interest in problems of economic and social change in rural India. To an extent it

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*I use the word "cultivator" as a generic term to avoid confusion in terminology. "Farmer" implies a commercial orientation. "Peasant" implies a subsistence orientation. I use these latter terms only when these meanings are intended.

is an applied rather than an exclusively academic interest. It is related to ongoing governmental programs effecting change not only in agricultural technology and production but also in the lives and well-being of a great many people. This discussion is directed in part to those in development, be they policy makers, advisors, administrators, or field workers. I feel it incumbent on myself to address problems and issues of directed change due to the role it has had in shaping the environment and processes on which this research was conducted. It is all the more important that I do so since development programs will continue to have a role in effecting change.

This dissertation, other than serving its immediate academic purpose is intended to be part of the opening dialogue between anthropologists and those involved in directed change, a dialogue fostered by neither party being able to ignore the other. For anthropologists working in developing nations and addressing questions of economic and social change, "developers" -- domestic and foreign -- are as much a part of the current scene as are "the people" being studied. Furthermore, whether anthropologists like it or not, public policy in the new states has an effect on the situations studied. There is also a growing awareness among those in development of the approaches and perspectives anthropologists have regarding questions of change, that problems and issues of intervention involve more than technical answers, that the introduction of technology and the manipulation of economic infrastructures have consequences which have ramifications beyond areas of their immediate concern. Developers are beginning to turn to anthropology and other social sciences for advice in understanding the broader nature of the problems they address, the construction and implementation of

programs, and achieving some measure of control over the consequences which their intervention generates (see Lipton, 1968: passim).

For better or worse, anthropologists find themselves occupying the position of critic toward developers. This arises from the different positions each has in orientation toward and involvement in questions of change. First, anthropologists -- particularly if foreigners -- are usually outsiders, both to the social situation and the programs of intervention. In effect they tend to play the role of critic, usually after the fact, if they are indeed moved by issues of directed change at all. As a consequence anthropologists are often seen by developers as thorns in their sides, having the luxury of equivocation or dilettantish indulgence in matters about which they do not have to made decisions. Developers (let alone the program recipients) have to live with their successes and failures. On the other hand, anthropologists as advocates of the people they study tend to see developers as bulls in a china shop, having little idea of what socio-economic and cultural arrangements are or what the consequences of their intervention are in terms of those arrangements.

Second, anthropologists view themselves as observers and analysts; one of their cardinal rules has been the non-interference and non-manipulation of the situation they study. Divorced from action they have not had to confront moral and ethical problems involved in intervention and look upon "development" with a jaundiced eye. This sets up an underlying antagonism toward those in development who attempt to alter social arrangements, behavior, and their economic base to bring about change in their product. Who are the interventionists, what interests do they represent, whose standards and values are being

applied, and to whom are the benefits of change -- if any -- accruing? These are issues which disconcert anthropologists, most of whom shy away from any involvement in them in the name of pure academic and personal integrity. These are questions which people involved in development are asking as well, particularly with regard to alternative models and approaches, income and wealth distribution, displacement and unemployment, and a growing disenchantment with gross indicators such as GNP.

Third, anthropologists are students of socio-cultural life, concerned with questions of interrelationships, organization, and behavior of people in their physical, social and cultural environment. Developers are oriented toward intervening and producing tangible results calculated in terms of quantity and magnitude of material things in relation to policy objectives. More often than not they do not consider socio-cultural arrangements or what alterations their programs cause in those arrangements. Occasionally, they are confronted by "exogenous" factors such as political interference or the non-acceptance of what they provide. These things are usually seen as annoying obstacles. Working with a ceteris paribus paradigm and a limited set of behaviorial assumptions, the well-being of people is coterminous with material well-being. This is to be tackled and measured in terms of the market value and distribution of goods and services and on occasion, the distribution of productive resources.

To an extent there is more concern with indicators and measurement, e.g., miles of road, quantities and prices of inputs, acres under cultivation, margins of profit, and levels of production, than with the socio-cultural and behavioral processes they represent. The point of convergence is the assumed welfare function that directed change is intended

to fulfill. And this must take into account social and cultural dimensions of how people and resources are organized in the task of making a livelihood, how this articulates with other features of social life, and what it all means to those people involved. This is the domain of the anthropologist.

Developers and anthropologists need not be adversaries. Both parties often share the same normative concerns. Anthropologists who have worked with the disadvantaged, dispossessed, or poorer segments of society -- particularly in complex stratified societies -- can hardly disagree that structural changes need to be made, that people need and want better housing, clothing, food and some meaningful control over their destiny. The manner in which this is to be achieved is a matter of debate -- as developers well know within their own circles. A dialogue with anthropologists can and should be fruitful.

Anthropologists interested in questions of economic and social change in contemporary societies such as India cannot help but be confronted by issues of directed change. This was one of the concerns going into the selection of the topic and locality of this study. I was further confronted by it while in the field. One of the recurring questions asked me, particularly while talking with small farmers, landless laborers and tenants was, "Why should we waste our time talking with you? It is nice of you that you have an interest in our problems, will write a book and become a big professor. But what is in it for us, what can you do in return, and how will our discussion help us improve our lot?" Pure academic research, the pursuit of knowledge for knowledge's sake founders on the lips of the informant. Leaving aside the question of academic integrity, what is our integrity in the eyes of the people

we study? My only possible reply to their question was that hopefully I could help through writing and being heard. But I could promise nothing. This was good enough for most of them, and I did get interviews. But to use this answer simply as a technique to elicit information to further the aims of anthropology is nothing but a confidence game. This study must be directed to extra-anthropological concerns.

The value of this study for the non-anthropological audience is as a case study of how agricultural production is organized and how and why cultivators interact in their economic environment as they do. It is useful to go beyond statistical indicators and their relationships to see what socio-cultural processes they indicate. Indicators do not have an independent existence and they are not the same as "the economy." It is necessary to discover how people individually and in groups, combined with physical resources are organized, and to what ends in order to understand what it is that is changing. This can and must lead to some rethinking about the nature of developmental problems where and if they exist, the behavioral assumptions on which programs are based, and what the range of effects are beyond the narrowly defined quantitative objectives of a program. It is one thing to have a notion of what should be -- the intended results and benefits of intervention -- but this must be rooted in an understanding of what is, how or if it is to be transformed, and what ultimate value it has for society. To this end, the areas of investigation in this study are local economic organization, the programs including their content, aims, operational assumptions, and their impact at the local level.

My interest in economic and social change also serves an academic concern; one beyond the writing of a dissertation. It permits an

exploration of issues and problems in economic anthropology. Among these is the relationship between economic and other socio-cultural institutions, i.e., economics as culturally mediated social behavior. At issue here are the parameters of economic behavior, those boundaries which account for organizational and behavioral patterns found not only at the level of individual producers, but between and within groups of producers and for the organization of production as a whole.

The basic issue is whether the constraints and incentives which form these parameters are solely economic in a material and technical sense, such as access to productive resources, technology and the profitability of their different combinations. Or does the environment including social organization and ideational features also influence economic behavior?

A related issue is one of approach. Is economic behavior a matter of individual actors each pursuing individual advantage who in the aggregate give form and structure to the economy? Or is it a matter of individual actors behaving within socio-economic constraints and incentives and the values and understandings of the culture in which they live? To expand: what latitude do cultivators have in their economic activities? What are their options within the economic system and what influences them -- as individuals or groups -- in the decisions they make and the strategies they pursue?

There are other issues which bear on types and strategies of economic behavior, in this case peasant and commercial agriculture which concern differences in the organization of economic activity, the ends pursued, the relationship between production units and other segments of

the economy and whether these things are amenable to analysis with the same categories and concepts.

Also of concern are questions regarding change. Development programs have opened new alternatives for cultivators, alternatives which are more productive and profitable. Yet the old production strategies have remained viable options. Is change solely based on alterations in the quantity, quality, and access to resources and the profitability of their combination, or is it also a consequence of social and cultural processes which make particular options unviable or undesirable? Conversely, does stasis result from the unavailability of resources and methods? Or is it also a result of social and cultural factors which make changes in economic strategy unviable or undesirable?

On a broad level, these are the issues to be covered in the following discussion both theoretically and in the context of two villages in Rajasthan, India.

More specifically, the investigation tries to explain the marked variations found among cultivators in the productivity and efficiency of their agricultural activities. This feature is associated with both "traditional" peasant and commercial agriculture in India. It was present prior to the introduction of new agricultural technology and is not simply a reflection of risk or adoption lag.

Differential access to resources partially explains variation, particularly on an aggregated level. What remains unanswered, however, is the variation which exists among cultivators enjoying equal access to productive resources. Where it is possible to hold constant the features of opportunity and risk, one still must explain why some cultivators use resources more efficiently, are more productive, and/or shift

production strategies to take advantage of opportunities whereas others do not. This problem is particularly difficult if one simply starts with an analysis of physical resources and the assumption of "rationality," operationalized most often in economic analysis as an inherent disposition for individuals to maximize material gain.

The analytical approach used here is to delimit an economic field and examine its structure in relation to the larger socio-cultural environment. Economic behavior is seen as influenced not only by individual predilections for material gain but also by features of the economic field -- the nature and distribution of resources combined with the socio-cultural organization centering on the obtaining of a livelihood. Answers can be found in the range of alternatives present within an economic field and the impinging socio-cultural environment which influences the manner in which resources are allocated, used, and the ends they serve. The wider environment of social relations, obligations, values and understandings affect commitments to material ends and/or compete for the allocation of productive resources.

Production strategies (and consequently levels of productivity and efficiency) are not solely determined by what is technically possible. They are also determined by actors' subjective notions of what is sufficient, desirable, and possible, and competing demands on their resources arising from the social context in which they live. The problem is turned around from testing the "rationality" of cultivators in an "objective" sense, to examining the range of viable alternatives available to them and their response to it.

In essence this is a study of how cultivators allocate their resources, what things influence them in decision making, how economic

activity is organized and to what ends, and what the consequences are for productivity and efficiency in their agricultural operations. The basic question being asked is, what accounts for variation?

The study is admittedly modest in scope. In matters of content the two villages surveyed are not necessarily representative of all Indian villages, nor is their agriculture necessarily representative of all Indian agriculture. That India contains a multitude of social groupings, sub-systems, regional variations, and agricultural zones is well documented. The problem inherent in a micro-study is to sort the particular and unique from the general and more universal. A study of this kind can only be done, however, on the micro-level, as it is only here that the socio-cultural dimensions of the problem are apparent. Replications of this study can be made to check, or to refine the findings and conclusions. I would argue that the features outlined here have wider applicability -- not in content particularly but in form. To this end, the aim of this study, not unlike other South Asian social inquiry, is to find the macrocosm within the microcosm.

CHAPTER I

THE PROBLEM OF VARIATION

The reader may wonder why variation in production behavior should be the topic of this study. In a sense the question is the opposite of what most social scientists pose. Within social anthropology the mainstream deals with a discovery and explanation of the regularities of social life, a concern perhaps best summed up by Radcliffe-Brown,

> My own view is that the concrete reality with which the social anthropologist is concerned in observation, description, comparison and classification, is not any sort of entity but a process. . . . The process itself consists of an immense multitude of actions and interactions of human beings, acting as individuals or in combinations or groups. Amidst the diversity of the particular events there are discoverable regularities, so that it is possible to give statements or descriptions of certain general features of the social life of a selected region. (Radcliffe-Brown, 1952: 4)

Expanding on this view, Fredrik Barth states the following,

> The "general features," the regularities in social life, thus have to do with the repetitive nature of acts, which we observe in our investigation of a social system. Our first descriptive characterization of our findings, then, must be one involving frequencies. No matter how crude our techniques for registration and counting are, our claim must be that we have discovered some non-random frequency distribution in actions. The patterns we report may most realistically be viewed as frequency distributions around a mode. My argument . . . is briefly . . . that our models should be designed to explain how the observable frequency patterns, or regularities, are generated. (Barth, 1966: 1)

Neither of these statements contains elements with which anthropologists, or social scientists generally, take exception. They include

several features which should be stressed as they are incorporated and expanded upon in this study.

In both statements the abstract nature of the models social anthropologists construct is clear. Models help in understanding social reality but are not reality itself. Reality is a continuum full of diverse actions, from which regularities and general features can be isolated. A systematic approach isolates the various constituent elements, and describes and explains their interrelationship in order to explain the particular features of social reality examined. This is what Barth means when he speaks of discovering how observable patterns and regularities are generated. Emphasis is on explaining the regularities or modes that are discovered. Observed behavior that does not approximate the mode is for the most part regarded as so much "noise" in the universe of social activity.

However, part of this study is an attempt to expand our models in order to take into account more of this "noise." This in no way implies -- and I take pains at the outset to stress this -- that modes of behavior are not discoverable nor that we should dispense with them. Modes will be discussed as the study gets into the subject at hand. The main point, however, is an explanation for the wide range of variability in behavior. In Barth's terms, I am more concerned with the distribution than the mode. Variability does not occur haphazardly, but has a structure and order of its own. Here the bounds of tolerance or the parameters of constraints and incentives which allow or disallow variations are important. In the course of such an analysis, both the mode and the distribution should be accounted for. The extremes in a range of variation may have great significance for understanding the feature

to be examined, and are not simply "noise." They may also have implications for the assumptions on which our explanatory frameworks rest and for generalizations we draw from analysis.

Another problem of focusing solely on modalities is that of an implied uniformity in behavior in response to impinging structural conditions. This is anthropology's "folk model" of analysis which as perceived by non-anthropologists has people and groups behaving as if they were automatons. Intuitively we know this is not so. Not all people behave the same way under the same conditions. For instance, in patrilineal societies sister's son does not always joke with mother's brother, although the structure of their relationship can be characterized as one of low authority and high affect in which joking more often occurs than not. It is useful to keep in mind the distinction between what is average, and uniformity.

Quite often the regularities we perceive in the continuum of social life obscure more than they reveal. This may be a result of our choice of indicators which are external to the feature to be explained. Sometimes the indices take on a reality of their own and are confused with the activity being measured. The following example serves as an illustration.

A study is made of a select region to determine what affects farmers' production behavior. The underlying behavioral assumption is that of economic rationality; farmers as maximizers of profit calculated on the basis of market values. Costs and levels of production are examined in relation to the market price of agricultural commodities. An aggregated analysis of fluctuations in these variables shows a positive production response to increases in the margin of profitability. From the

indicators, the inference is drawn that farmers expand production during good times to take advantage of profits and adjust their production downward as profitability declines. Their behavior appears to be explained by that of the indicators and the assumption of economic rationality appears to be valid.

However, all farmers might not be responding in this manner. Ten percent of them accounting for a disproportionate share of total production might behave in such a "rational" manner. The other ninety percent may not respond at all, or may react negatively to such fluctuations. Some may not be linked directly into cash factor or product markets and are insulated from any effect the monetized market has. Others may have these links but may lower production as profitability increases since they can realize the same income with less effort. The volume of production by the top ten percent and the difference their production makes in the aggregated index overshadows the effect of the other ninety percent of farmers. Upon closer examination the behavioral assumption, substantiated at one level of analysis loses most of its validity.

There are several points to be made with the above example. First, levels of analysis are confused. The conclusion derived from aggregated analysis is invalid for the level of behavior to which it proportedly applies.

Second, the conclusion that farmers are "rational," in the mold of "economic man" appears to work well also at the aggregated level. But here too there are problems of applicability. The indices used are measures of things and their market value. They are external to human behavior and interaction. The behavioral assumptions involved can only be imputed since human activity is not itself examined. These

assumptions have applicability with regard to the "behavior" of the indicators and not the behavioral process that generated them. Unless there is some "perverse" relationship demonstrated, e.g., backward sloping labor supply curves in relation to wage scales or backward bending production curves in relation to profitability, such behavioral assumptions are rarely called into question. In other like situations, the assumption of economic rationality may well hold true, but again this can only be imputed.

Third, this case contains problems of explanations and interpretation regarding variations in behavior which are apparent as one moves away from aggregated analysis. The fact that a small percentage of farmers can affect the indicators emphasizes the point that an explanation of a particular feature may well lie in the extremes of what is observed rather than in the average.

The significant extreme in this case does form a pattern, one among several. These patterns would include the "rational" group of farmers maximizing profit, those who are insulated from the cash economy and who produce with other objectives in mind, and a group of satisficers who although participating in the cash economy, are not motivated by material gain. It would be easy to dismiss the latter two as lazy, indifferent, or "irrational" but these terms do not explain their behavior. Their behavior is so much "noise" in the universe. And yet in this case, these people form the overwhelming majority of farmers.

Alternative explanations for these farmers can be anticipated in the above discussion. The "economic man" model applies to the ten percent of farmers maximizing profit. A "satisficing" model would explain those who respond negatively to opportunities in the market. A

satisficing or risk aversion model might apply to those not directly involved in the monetized market, but a peasant model is more appropriate. In the peasant case, production is based on the exploitation of kind and family labor resources with minimal cash inputs. Producing primarily for household consumption, output in their case is a function of the number of working members, kind resources held, and the household's consumption requirements (Chayanov, 1966: 5). The cash value of their kind and products is irrelevant to decision making.

Using these additional frameworks, things seem to be fairly clear. Each model provides a reasonable explanation for the type of behavior observed. Each also provides an element of rationality for each behavior type as divergent behavior patterns become understandable in view of their objectives. But the issue becomes more like the proverbial tar baby. The more one probes to get answers, the more one gets mired down. These models might explain each type of behavior as separate entities. But they do not explain how all three can be found together. The explanations are not interchangeable nor does one know why cultivators come to occupy one position rather than another. The question of what accounts for these variations in production behavior remains. What are the properties of the system which generate them and allow them to exist?

The real world is, of course, not made of hypothetical situations, and there is little point in further elaboration on this example. A warrant has been made, however, for a systematic investigation of variation in organization and behavior as they occur in a particular environment. Accounting for such variations is important for a fuller understanding of particular features examined and for comprehending

things at a systems' level. The occurrence and persistence of variation under the same conditions has implications for our explanatory frameworks, their assumptions and the generalizations we derive from analysis.

It should be obvious to the reader that the above case is transparent. It contains an agenda for issues to be examined in this study. Although the study is not concerned with fluctuations in production, the types of production behavior and their relative frequencies correspond to what was found in the field. The problem is the same; that of fitting the various pieces together into a coherent whole, to explain the occurrence of divergent behavior within the same environment.

The Nature of the Problem: Hanumangarh and Shivpura*

To provide a reasonable and accurate explanation for the production behavior of cultivators in the two villages surveyed is similar to the problems found in the case presented above. Combining cash costs with the cash value of household labor and other kind inputs, production costs are exceeded by the market value of their product. In one village, hereafter referred to as Hanumangarh, cultivators as a whole realize an 8 percent return over investment. In the other village, hereafter referred to as Shivpura, the average return to investment is 39 percent. One might conclude that cultivators in these two villages are exhibiting "rational" behavior as they seem to operate their

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*Hanumangarh and Shivpura are pseudonyms. The two villages are found in Rajasthan in Jaipur and Bharatpur districts respectively and are roughly equidistant from Jaipur and Bharatpur cities. They are the same villages studied by Aruna N. Michie (Michie, 1975: passim).

holdings with at least some rough cost-benefit calculus based on market values.

Upon closer examination, however, a broad range appears in productivity, profits made, and returns to investment. Without controlling for quality of land or size of operation, the range in both villages appears as follows:

TABLE 1.1. Range of Variation Showing Averages, Highs and Lows in Production Performance - All Land: Hanumangarh and Shivpura

	Hanumangarh			Shivpura		
(No. of Households)	Average (44)	High (1)	Low (1)	Average (10)	High (1)	Low (1)
Productivity @ Acre (Kgs.)*	356	1477	00	326	781	42
Profits @ Acre (Rs.)	32	1148	-788	98	474	-143
% Return to Investment	8%	225%	-100%	39%	157%	-60%

Note: One rupee equals $.13. One U. S. dollar equals Rs. 7.50.

* Includes cereals, lentils, oilseed, and spices.

Ten percent of the cultivators represent a disproportionate share of the gross totals. Four of the forty-four households in Hanumangarh and one out of ten households in Shivpura constitute the following shares.

TABLE 1.2. Percentage Share of Total Production, Returns, and Sales for the Ten Percent of Cultivating Households Having the Greatest Gross Production

	Hanumangarh			Shivpura		
(No. of Households)	All Cultivators (44)	Top 10% Total (4)	% Share	All Cultivators (10)	Top 10% Total (1)	% Share
Production (Kgs.)	117,944	67,015	57%	56,486	23,130	41%
Gross Return (Rs.)	149,586	84,728	57%	61,337	22,973	38%
Produce Sold (Kgs.)*	37,476	33,280	90%	8,520	5,000	59%

* Includes cash sales only; excludes kind exchanges and debt repayment in kind.

Although cultivators as a whole operate their holdings at a profit, a sizeable proportion operate at a loss. Computing total cash and kind costs against the market value of produce, thirty-one of the forty-four households in Hanumangarh, and five of the ten in Shivpura are not making a profit. In both villages those 10 percent of households with the highest gross production operate at a profit. In Hanumangarh, this group receives a 34 percent return to investment, or about four times the average. In Shivpura, the top household received a 157 percent return, or roughly four times the village average.

This distribution presents several problems for interpretation. A standard cost-benefit analysis shown in the tables leads to a rather confusing and paradoxical set of circumstances. One might expect some cultivators to operate at a loss but certainly not the overwhelming majority of them. Agriculture appears to be a draining sink for most cultivators. One might conclude most of them are going broke and that

they will be either forced out of agriculture or will have to improve their performance. Neither of these is the case as will be discussed below.

One might look for other factors to explain this apparently dismal performance. Unfortunately these data are not diachronic to show production fluctuations over time for the households surveyed. There is evidence from district records and the statements of cultivators, that production during 1971-72 was low due to poor rainfall. Most land is unirrigated and agriculture is dependent on monsoon rains which are variable from year to year. It can be argued that cultivators have adapted to this climatic feature by following a low risk strategy which in years of good rains provides a large return and in bad years entails little loss. Over the long run, yearly production averages out at a higher point than reflected in the 1971-72 figures. Thus, over time most cultivators operate at a profit or at least break even. We will return to this later but even controlling for climate a wide range of variation exists and besides, the climate affects each farmer uniformly. This variation is apparent in the following tables which separate irrigated from unirrigated land.

TABLE 1.3. Range of Variation Showing Averages, Highs and Lows in Production Performance - Irrigated Land: Hanumangarh and Shivpura

Item	Hanumangarh			Shivpura		
(No. of Households)	Average (21)	High (1)	Low (1)	Average (7)	High (1)	Low (1)
Productivity @ Acre (Kgs.)	498	1026	213	644	1500	367
Profits @ Acre (Rs.)	82	450	-788	233	824	-158
% Return to Investment	15%	88%	-58%	56%	147%	-29%

* Includes cereals, lentils, oilseed and spices.

TABLE 1.4. Range of Variation Showing Averages, Highs and Lows in Production Performance - Unirrigated Land: Hanumangarh and Shivpura

Item	Hanumangarh			Shivpura		
(No. of Households)	Average (32)	High (1)	Low (1)	Average (9)	High (1)	Low (1)
Productivity @ Acre (Kgs.)	141	2800	00	183	415	42
Profits @ Acre (Rs.)	-44	2717	-511	39	296	-154
% Return to Investment	18%	558%	-100%	21%	174%	-58%

* Includes cereals, lentils, oilseed and spices.

Computing the cash value of all inputs against the cash value of products, nine of the twenty-one households in Hanumangarh and one of the seven households in Shivpura cultivating irrigated land operate at a loss. Of those cultivating unirrigated land, twenty-five of the

thirty-two households in Hanumangarh and six of the nine households in Shivpura make no profit.

A number of things stand out in this distribution. Obviously irrigated land gives higher yields, profits and percentage of return to investment. The distribution for irrigated land is narrower than for unirrigated land, particularly for returns to investment. As irrigated land is less subject to the vagaries of rainfall, cultivators have more control over their physical environment. Although there is wider distribution of unirrigated land, there is also a lesser rupee loss for those making no profit. This tends to support the low risk argument for cultivators, at least on their unirrigated lands.

Despite this, there is still a wide distribution, particularly on irrigated land. The question remains why such variations exist and also why it is that so many cultivators operate at a loss.

Approaches to the Problem

The discussion of production in the two villages has so far served an expository purpose, to lay out the bare bones of the problem. Furthermore, it has centered on particular indicators and relationships without examining the organizational and behavioral features which have generated them. If economics is to be seen as a form of social activity involving the combination of human and non-human resources to meet culturally defined ends (Firth, 1961: 123), these relationships must be spelled out in order to build a framework with which to approach the problem.

The social and cultural context in which economic behavior occurs is not simply something of interest in and of itself or an appendix to

economics. Rather, it defines the manner in which human groups are organized to secure and use the material conditions of their existence. Economies are not concrete entities discrete from other human activities and concerns. An "economy" is first a conceptual construct which provides a way of looking at things. Depending on one's conceptual framework, things "economic" have an internal character -- specific to that realm we conceptually isolate as economic -- as well as an external character in that they are related to and are part of other realms of human activity (after Bateson, 1972: 73-87 and Godelier, 1972: Part III). Although things economic often appear as discrete entities, this is more an artifact of the analytical technique than a reflection of the object of study itself.

Critique of Operations Research

For instance, the cost-benefit analysis employed above in the statement of the problem is a technique developed for analyzing production behavior in a monetized market setting.* It is a formal procedure which involves sets of calculations that enable one to minimize or maximize some objective function. The calculation is indifferent to the actual objects being manipulated. It presupposes that objects, institutions and relationships between actor units exist and are defined and that manipulation is the only problem to be solved (Godelier, 1972: 254).

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*It is recognized that this technique can be applied to any number of situations and not solely to monetized market exchanges. It is just as applicable to a purely subsistence situation, e.g., energy expended against energy obtained.

The problem of this procedure lies in the a priori assumption of what the objects of manipulation are, how humans and resources are organized, what the standard of value is and to what objectives activity is directed. These things in one setting may differ in another and must be specified before analysis is undertaken. Furthermore, there is the problem of unidimensionality; that activity is directed toward the obtaining of cash income. In reality objectives are often multiple. The same resources are often used for the attainment of different ends which necessitates multiple evaluations of their use.

If used in a monetary market situation, a cost-benefit analysis assumes the presence of certain conditions. Production units are firms acting as individuals to obtain factors of production and dispose of products through exchange. The objective is clear; to earn a cash return greater than that expended in producing the item sold. Finally, an assumed connection exists between these units and the market, which imparts a formal arrangement with its attendant logic and imperative into the relationship.

The market acts as the integrating mechanism through and by which production units organize, operate and evaluate their activities. Factors of production and products are commodities exchanged for cash with other economic units, cash being both the medium of exchange and the standard of value. The appropriation, combination and utilization of factors of production are evaluated by their cash cost. Also included is the imputed cash value of any non-cash expenditure such as the producer's time and labor which, although being his own, is potentially a commodity exchangeable for salary or wages.

The producer sells commodities to others (other production units, middlemen, or consumers). The costs of production are evaluated against the return received through sales and the return must at least equal the cost. It is imperative that producers exchange commodities and evaluate their operations in this manner. In order to sustain the enterprise, cash must be obtained for reinvestment which can only be accomplished through exchange of commodities. Over the long run a profit must also be made to ensure viability. If the producer operates at a loss, productive resources cannot be maintained or replenished; ultimately the business collapses.

This formal arrangement can be modified by the extent to which factors of production are obtained through exchange. Inputs that are obtained from other sources, e.g., family labor or other kind inputs generated, utilized, expended and replenished within the enterprise, do not have to be evaluated according to their market cost. Only those items obtained through inter-unit exchange necessarily have to be accounted for in this manner and only a return over those costs must be made to ensure viability (after Galeski, 1972: 9-13).

This analytical technique can be applied to any type of production unit. Although production entails the organization of human and non-human resources to create need or want satisfying things, the specificity of that organization and things created is irrelevant to analysis as long as the process is mediated by the market and items can be reduced and expressed in exchange equivalences. The same relationship obtains whether it is a one person operation, a family enterprise or a multi-national corporation, whether the concern is producing foodstuffs,

automobiles, or Hostess Ding-Dongs.* The same logic and formal set of principles apply.

"All things being equal" (ceteris paribus), production will follow the constraints and incentives of supply and demand, cost-benefit, and profit margins as represented and measured in the market's own terms. Production units have no choice but to consider these things in their operations. They must ensure a return over investment simply to remain viable, protect assets and generate income for consumption. Profitability does not necessarily play upon any predilection for accumulation and gain, but is rather a necessary condition for production to take place in a monetized exchange economy. Thus this technique and the assumptions on which it is based are only applicable under certain conditions, conditions not entirely met in the two villages studied.

Relationship Between Economic and Socio-Cultural Domains

The interrelationship between production units and the market in combination with the ceteris paribus assumption that it allows, provides for a conceptualization of economics as a discrete entity regulated by its own principles and logic apart from the wider social and cultural context. Yet in any empirical situation, economics consists of organized combinations of humans and other resources directed toward satisfying needs and wants. There cannot be form without substance. Economic exchange cannot exist without human actors or without things of value to the actors being produced, distributed, exchanged or consumed.

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*A brand name of a popular American snack food as nourishing as its name is sensible.

That is, the social and cultural context defines the relationships, the objects that are manipulated and the ends being served.

Economic, social and cultural features penetrate one another. Social relations are internal to the economic process as are cultural features. Similarly, things economic are involved in other social processes and serve culturally defined ends. It is in the interior/exterior articulation of economy/society/culture that give economic phenomena meanings that are not discernible apart from the cultural and social context (after Cook, 1973: 813).

Economics is socially organized to the extent that persons and groups have more or less specific rights, duties and obligations toward one another and also with regard to goods and services (after Beteille, 1965: 110). This permits an analysis of the social relations of production. The distribution of resources within a population influences the manner in which people come together in the production process. The possession or control of land, labor, capital or technological expertise -- either singly or in combination -- engenders sets of relationships between people bringing different things to the production process. For instance in the two villages surveyed, these define the relations between landowners, tenants, laborers, artisans and creditors.

These relationships set in motion a chain of other interactions which affect the production of goods and services upon whose measurement the formal operations research analysis is based. What people bring to the production process determines their manner of participation. How they participate determines their allocation of goods and services from production, profits and wages either in cash or kind. These are further distributed through exchange for other desired or needed

consumption items (included is investment in production as things are consumed in the act of production). This in turn affects the demand for commodities and hence the producer's calculations of supply-demand, cost-price, profit margins and volume of production (after Cook, 1973: 814).

Culture is linked inextricably with economics. The economic process is imbued with meaning by the participants. Exchanges and relationships define the participants not only for economic activity, but for other activities as well. Economic activity is influenced by beliefs, values, preferences, morals and understandings. Things are produced and circulated through the economy because they are needed, desired or valued. They reflect understandings about how much of what things are necessary or desirable. Goods do not mechanically satisfy needs and wants but are evaluated by subjective criteria (e.g., taste, aesthetics, quality, fashionability) and also by such things as the prestige that accrues to the possessor or consumer. In other words, culture helps define the objects which formal analysis measures and manipulates.

The articulation of economics with the socio-cultural domain is not unidirectional. Things produced, circulated and consumed are instrumentalities which serve social and cultural purposes. Economics is an aspect of these other domains in so far as their functioning involves the production and use of material means. Economics is organically linked to such things as politics, religion, kinship, social stratification and group formation which along with it make up the content of the life of a society. Economic activity provides the material means for their realization (Godelier, 1972: 257, 263). An economy does not

exist of and for itself but serves the hierarchy of socio-cultural needs of society.

Definition of Economics: The Formalist-Substantivist Debate

This leads to an overdue statement of what is meant by "economics" and its relationship to this study. To return to an earlier point, an economy is not a concrete, discrete thing that can be isolated and dissected into its constituent elements as can be done with a biological organism (Cook, 1973: 812). It is foremost an heuristic construct allowing for an analysis and understanding of particular aspects of human activity.

The first problem is to specify what is "economic," something which has concerned anthropologists for some time and has provided a subject for much argument and polemic. It is not the intention of this discussion to go into the formalist-substantivist debate in any great depth as it is considered to be practically a dead issue and little purpose would be served by doing so. The differences between the two have been reconciled in the approach adopted in this study (Cook, 1973; Godelier, 1972).

Briefly, formalists define the economy as an aspect of all human behavior. It is found in any activity involving a relationship between ends and scarce means which have alternative uses.

> It does not attempt to pick out certain kinds of behavior, but focuses attention on a particular aspect of behavior, the form imposed by the influence of scarcity. . . . We do not say that the production of potatoes is economic activity and the production of philosophy is not. We say rather that, in so far as either activity involves the relinquishment of other desired alternatives, it has its economic aspect. (Robbins, 1968: 96-97)

included is the notion of maximization: choice is exercised to allocate scarce means to obtain desired ends and this ends-means relationship is calculated rationally to receive the greatest return for the means expended (Burling, 1968: 179). In short, economics is the study of economizing behavior; that aspect of any purposive, goal oriented activity which involves the allocation of scarce means to multiple ends to achieve the maximum return of whatever is desired.

The most problematic part of this definition is the explicit denial that economics deals with any particular thing or activity. Firth, while accepting this definition modifies it by inserting the element of materiality as well (Firth, 1967: 3-4). But by and large, these principles are assumed to be applicable to almost any activity. In effect, everything comes under the purview of economics as long as it involves the allocation of scarce means to alternative ends (Robbins, 1968: 97; Burling, 1968: 177; LeClair and Schneider, 1968: 455). Time too can be considered a scarce resource and thus every human action becomes economic by definition. As Cook and Godelier note, such a definition ". . . deals with everything in society but in fact with nothing" (Cook, 1973: 809); ". . . while all purposive action comes to be called economic in principle, no action actually remains economic in fact" (Godelier, 1972: 253).

The substantivists also suffer conceptual and operational difficulties. They differentiate two meanings of "economic." One is the formal definition, the ends-means relationship and the necessity of choice conditioned by scarcity, as discussed above. The substantive meaning is based on empirical reality, the process by which a sociocultural system provisions itself. The formal definition follows the rules of the mind and is logically deductive. The substantive

definition follows the roles of nature -- that humans universally must secure the material conditions of their existence to survive and reproduce themselves -- and this is inductive (after Cook, 1968).

The substantivists hold that the formal and substantive definitions coincidentally apply to only one type of economy, a price regulated market economy such as western capitalism. In such an economy, all social actors obtain their livelihood through the exchange of material goods or services as producers, workers and consumers; or as buyers and sellers. The institution of price regulated markets, which logically exist prior to activity, creates scarcity by establishing the relationship of scarce means, i.e., money as wages, profits or purchasing power, to alternative ends. Actors must rank their preferences and objectives and rationally calculate costs and returns of each. These conditions it is argued, are not necessarily found in all empirical situations and thus the applicability of the formal definition depends on the existence of particular institutional settings (Polanyi, 1968; Dalton, 1968; Sahlins, 1972).

In the substantivist view, economics is an instituted process. It is the interaction between man and his environment (including other men) which results in a continuous supply of material things (Polanyi, 1968: 126). It is a process which provisions society, but no institution is economic in and of itself. Insofar as any one functions to provision society, it has an economic aspect and is part of the economic process (Sahlins, 1972: 185). The process is imbedded in social institutions which may perform various functions other than the provisioning one. Economics thus follows the dictates of those institutions of which it is a part and therefore, cannot be a separate or self-regulating entity.

Only analyses of the institutionalized manner in which societies provision themselves allow for comparison and the construction of generalities. Analyses based on the formal logico-deductive principles which are institutionally specific do not permit this (Dalton, 1968: xxxii).

The substantivists have problems similar to those of the formalists. Nothing is demarcated as economic. With the exception of western market institutions in which the economy appears to emerge as a separable entity, economics appears as an aspect of other institutions. Although a field of activity is implied -- the material provisioning of society -- it dissolves into other areas of human concern, e.g., kinship, religion or politics. Emphasis is placed on exterior relations with other areas of activity (the opposite of the formalists' emphasis on interior relations and internal consistency). Neither are components of the process specified, e.g., production, distribution, exchange and consumption, other than the general notion of provisioning, acquisition and appropriation. Thus the substantivists also find themselves without a specific field of inquiry.

They are also devoid of any general theory about economic behavior. There is provision for descriptive analysis which leads to the delineation of process types, reciprocity, redistribution and exchange. Using it, one can also articulate economics with social and cultural features of the environment in which the process occurs. By doing so, one reinforces the functionalist approach in anthropology, that economics is a part of society and culture. But a broad functionalist umbrella does not tell us much about economic behavior and organization <u>per se</u>, nor does it allow for the specificity as to what is and what is not

economic. As with the formalists, everything in society may have an economic aspect, but nothing is economic itself.

Neither approach sufficiently comes to grips with the nature and scope of economic inquiry. The formalists argue for deductive models and principles, but fail to delineate the phenomena to which they apply. The substantivists are no more successful. They do help clarify, but not successfully interrelate the distinction between reality, and reality as conceived by theory. Each has a different point of departure and emphasizes different levels of analysis. Both wind up talking by each other without being able to pin down the nature and scope of the phenomena over which they are debating.

The two approaches are not incompatible. Portions of each can be used once the field of inquiry is established. Formal constructs should reflect the reality with which they deal, hence the importance of specifying the scope of reality to which they apply. Reality only becomes intelligible within a conceptual framework or context which allows one to analyze it (after Cook, 1973: 810). To have form, there must be substance; to understand substance, there must be a conceptual framework.

Definition of an Economic Field

Interestingly, both parties deal with material flows, provisioning, the earning or making of a livelihood and the socio-cultural relations by which they occur. It is surprising that this implied field of activity has not been given formal recognition by either.

The concept of an economic field serves several purposes. It sets out consistent criteria by which things are economic or are related to economics; i.e., it divides the universe into manageable units and

categories. It is a construct which allows one to generate propositions about the relations between elements in the field. One can also discern the articulation between economics and other fields of human activity. Essentially, one is able to set boundaries and delineate a heuristic field for inquiry without separating it entirely from other things which may be of relevance.

Cook has formulated such a definition of the economic field which is used with some modification in this study.

> The economy is a culturally mediated field of a human population's activity in which its members interact with their physical and social environment in the calculated attempt to acquire, directly or indirectly, a living. (Cook, 1973: 810)

The phrase "directly or indirectly," refers to the distinction between management units producing to meet their consumption needs directly, e.g., peasant households, and those involved in interunit exchange, e.g., commercial farmers or market intermediaries. These are not mutually exclusive categories. One would be hard pressed to find any individual or management unit which does not participate in exchange activities at all. The distinction lies in primary orientation; the direct acquisition of need satisfying things through production or through production/exchange and/or exchange.

"Acquire . . . a living" refers to obtaining wealth or usable items to satisfy subsistence and acquisitive wants. The emphasis is on activities which sustain, maintain and reproduce the social unit. This does not, however, exclude other activities such as the production, transfer and use of material wealth for prestige, ceremonial, political, status maintenance and enhancement, or other non-subsistence purposes. The point is an economy does not function solely to keep people alive.

"Calculated attempt" implies that economic activity is purposive and entails choice. It is a rational process in which actors tailor their means or choose between alternative means to at least attain certain minimal ends. Choice does not necessarily imply conditions of scarcity, although limited time and effort may apply to almost all situations. For instance, Polanyi points out the necessity of choice where there are two different ways containing the same advantages and disadvantages, to attain the same end. There can be scarcity of means without choice, only one possible combination of limited means to attain an end. This is applicable only under those circumstances where the end has been defined and is being pursued. There is still choice involved in setting the end, even though the decision may ultimately come down to the choice between living and dying. Also, an abundance of means, far from diminishing the difficulties of choice, would rather increase them. Scarcity is a matter of fact and may or may not be present in a given situation (Polanyi, 1968: 125).

Critique of "Rationality"

Economic activity as a rational process implies that means used in pursuing an end should be appropriate to the task and that ends be collectively coherent and not contradictory (Godelier, 1972: 12). Rationality is relevant to the means-ends relationship and not to the process whereby ends are defined as objectives worthy of pursuit. Thus one cannot assume that to produce only enough grain to feed onself is irrational whereas producing as much grain as possible under the same resource and market conditions for sale, profit and to feed oneself is rational. Whatever the end, one should choose one's means accordingly.

Rationality refers to the means-end relationship and not to the setting of goals. In effect, there is no such thing as a rational goal (Polanyi, 1968: 124; Srinivas, 1966: 52). This is important to keep in mind as it relates directly to the problem of variation, divergent goals within the same environment.

Critique of Maximization and Economizing

Rationality does imply economizing, that is, minimizing costs in attaining a given objective. But this does not imply a universal maximization principle which tends to channel behavior in a particular direction. Operationalized to its simplistic form in most economic discussion, maximization means "more is better," that demand for material things is insatiable. This assumes that actors will inevitably tend toward those activities and strategies which bring the greatest material reward (which leads one to wonder about university professors). This is the supposed engine which drives the economic process and also explains change.

According to this line of thought, economic behavior reflects the constraints of an opportunity structure. This is comprised of physical and information resources (including technology); marketing and regulatory institutions, communications and transportation; a degree of market imperfections, risk and uncertainty; and potential cost-benefit ratios for different combinations of things and strategies pursued. Out of the range of alternatives contained in such an environment, the actor chooses the strategy which brings the best return. This holds for production, exchange and consuming behavior. For a producer in a monetized economy, this is interpreted as cash profits. That combination of

things which brings the greatest profit is the one which the "economically rational" actor will gravitate toward.

The constraints of the opportunity structure determine upper limits of productivity and efficiency. The performances of individuals and the economy as a whole should reach an equilibrium approximating this level. Low productivity is due to the lack of opportunity to efficiently produce more. Change in the strategy and performance of actors occurs due to changes in opportunities which either diminish or increase the returns to be had. Given the opportunity, economic actors will turn sand into gold. This is the basic argument at least implicit in most approaches to economic development. Manipulate the opportunity structure to ensure greater productivity with profitability, and growth will occur. Maximization of material return is the engine to be freed. Greed, properly channeled, is of the highest social utility (Schultz, 1964; Papanek, 1967; Blair, 1971; Asian Development Bank, 1968).

Uncertainty and Risk

Apart from the problem of assuming the ends of economic behavior, i.e., that economic actors maximize material return, there are other criticisms to be made. Many authors have qualified this approach to take into account uncertainty and risk.

In few situations do people have perfect knowledge concerning the outcome of their activities. All that is certain is the result of strategies pursued in the past. The further one departs from past behavior, the less certain are the consequences. This confirms the wisdom of: "We will do today what we did yesterday unless there are very good reasons for doing otherwise" (Boulding, 1961: 86-87). In such a

situation, an actor may search for additional information on the probable results of other strategies and will take up alternatives despite uncertainty if past performance has not yielded desired results. Similarly, people do not often wholly commit themselves to new ventures but commit a small portion of their resources in trial runs (Wharton, 1971: 572).*

In this line of criticism the assumption remains that maximizing underlies economic behavior. It argues that people are maximizers and were it not for uncertainty and risk, they would opt for the most profitable strategy. It does, however, incorporate a satisficing notion as actors remain satisfied with a particular strategy unless things become too bad, even though they may be aware of potentially more rewarding strategies.

Satisficing

The satisficing argument, as developed by Simon, comes from psychology and centers on the notion of satiation. Action stems from drives and ceases when they are satisfied. Satisfaction is conditioned by the environment and may be specified by an aspiration level which is adjusted up or down on the basis of the actor's experience. For instance, if applied to the behavior of a business firm, the goal is not necessarily to maximize profit, but perhaps to attain a certain level of return or a share of the market. Studies of marketing behavior in which businessmen apply a standard mark-up to establish the selling price of commodities instead of charging what the market will bear support this argument. Other studies have shown that firms with a declining share of

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*See also Cancian, 1972: passim and Ortiz, 1973: passim.

the market strive to increase sales more than other firms whose shares of the market are steady or increasing. When performance falls short of aspirations or expectations, the search for new alternatives and adoption of different strategies is induced (Simon, 1967: 10-12).

The concept of satisficing is central to my argument and it is applicable to subsistence agriculture. Cultivating techniques and levels of production are adjusted to meet the food requirements of the household. The search for new alternatives begins when current production falls below requirements, due for instance to the increase in size of household. Once that level has been achieved through searching out new alternatives, bringing more land under cultivation or intensifying cultivation, behavior stabilizes and production levels off even though the potential has not been reached.

Maximization of Utility

Another problem brought out by Simon is the extention of the maximization principle beyond material or monetary rewards. An actor's satisfaction (or utility function) may include more than material things such as pleasure derived from a particular occuption, leisure time, or other activities which bring prestige, grace, salvation, power, reknown or goodwill. These other activities may make one forego material reward (they have an opportunity cost) or may entail the use of resources that could otherwise be used to earn such rewards. If an actor maximizes utility in this sense, he will have to balance material gain against "psychic income." But if "psychic income" is allowed into the utility function, maximization loses its definitiveness and power of explanation (Simon, 1967: 9).

With this argument, maximization becomes a tautological principle. Since actors are by definition maximizers of utility, their utility function determines their behavior whatever the mix of material and "psychic" utility may be. Therefore, whatever behavior an actor exhibits, it is a reflection of his utility function. No matter what an actor does, he is maximizing. This principle explains every human act, and hence explains nothing.

At the very most this approach allows for a post mortum of what an actor was doing. But it does not explain why a particular actor or sets of actors choose to do one thing over another, nor why with identical circumstances and opportunities, actors will exhibit divergent behavior. Neither does it explain behavior with regard to material ends, why some people prefer more and others less of material rewards. As in Godelier's criticism of operations research (page 23 above), the maximization principle and its corollary of rational choice are incapable of defining the objects toward which behavior is directed. As a consequence neither can they explain behavior toward a particular object or set of objects, e.g., material rewards, since by definition, all behavior is ultimately maximizing behavior and therefore, rational.

In operations research, it is assumed that actors already have defined their universe, ranked combinations of alternatives within it and have set their respective courses of action in accordance with the subjective evaluations of utility. Actors draw their own indifference curve (ultimately between material reward and "psychic income"), and economic analysis proceeds from there (Heath, 1976: 8-10). The ability to predict behavior with this approach stems from actors making decisions on the basis of past experience. The problem remains, however, of

explaining how actors arrive at their particular utility function and set on their course of action.

Socio-Cultural Environment

In order to answer this question one has to go beyond individuals and the general form of purposive action. One must know the structure of the relationships of which they are a part. Instead of starting with the individual's subjective evaluations of utility, it is more fruitful to begin with the environment in which actors operate (after Godelier, 1972: 25).

The environment sets limits to the possible forms behavior can take. It also sets limits to the material things manipulated in the processes of production, transfer and utilization. It defines how the economic process is to be carried out and what the relations are between individuals and groups involved. It also defines valued objects, as well as valued positions and life styles which require material means for their realization. This is a socio-cultural process, not an idiosyncratic one. In short, human beings are not only individuals, but are also physical, social and cultural beings subject to the constraints, incentives, definitions, meanings and categories of the system of relationships in which they participate.

In order to live and reproduce, people must adapt to their physical environment. They must at least provide for minimum shelter, warmth, protection and energy requirements. A particular physical environment -- composed of mineral, animal and plant resources -- presents limitations, possibilities and imperatives for these things to be accomplished. The physical setting must contain exploitable material resources.

Humans must have the means to exploit those resources. Technology -- equipment, techniques, skills and knowledge -- provides the means for such exploitation and mediates the relationship between a population and its physical environment. Economic behavior then is partially an ecological process which partakes of energy flows and transfers as well as material flows and transformations which make all forms of socio-cultural life possible.

By this criterion, economics is concerned primarily with the material realm. But some people make their living by providing a service which does not involve the use of material means. Non-material services can be included in the economic field insofar as they provide their performers with the material conditions of their existence. For instance, a Brahmin priest recites scriptures, performs rituals and gives advice to his clientele. In return he either receives cash, grain, cloth, land, and/or cattle. A service such as a free concert, although it has an economic aspect as it involves the production, transfer and use of material things for its performance, is not economic.

Within the economic field, a human population interacts with its social environment to acquire a living. Individuals are involved in person-to-person relationships, are members of groups in relation to other groups and are participants in larger incorporating processes and formations, e.g., families, villages, castes, states, politics or market exchange networks. People hold particular statuses and perform appropriate roles containing obligation, rights, duties, responsibilities and expectation vis-a-vis others in the community. As participants they are subject to the constraints and incentives which govern the larger whole.

These relations can be conceived as a system in which its constituent parts: individuals, concepts, institutions or things, are linked by rules which define and govern their combination. Rules are explicit, willed principles created, applied and followed to organize social life. Every known population has had rules and one might argue they are a necessary condition for human life. Through some modicum of order, life is predictable, has purpose and people know what to expect from one another. Unrelated objects (and people) are deprived of meaning and purpose; objectless relations are deprived of existence (Godelier, 1972: 258).

Not all activity is defined or directed by conscious design. Activities, structures, processes and relationships have certain consequences that are not always anticipated or willed. These are the unintentional properties of a system; ones to which people must adapt. Societies make successive adjustments in their rules and patterns of relations when the situation demands. A society submits to such laws without necessarily having explicit or theoretical awareness of them (Godelier, 1972: 260-261). Similarly in natural law, falling bodies do not have to be aware of gravitation for it to have its effect.

But in social systems, there is no clear cause and effect principle whereby one, a combination, or all possible things will be altered to bring about an accommodation. For instance, a swidden based society favoring large families which leads to population growth will have to make some accommodation when there is no more land for expansion. Whether this involves infanticide, birth control, later marriages, restricted access to land, internecine warfare, or whatever, is not determined by the unfavorable land-population ratio. Change is

influenced by the properties of all domains within the system each of which has a limiting effect on the others and influences the range of possible forms which can appear in any one (Godelier, 1972: 257-263).

Whether one's analysis is diachronic or synchronic, the initial problem is to delineate the relevant levels and structures -- broadly techno-environment-economic, social and cultural -- and specify their correspondences. One level, however, cannot be reduced to or deduced from any other.

> We must therefore tackle the problem of the laws of correspondence between structures without allowing ourselves to be affected by any implicit philosophy of causality in the social domain. . . . such as the idea that the non-economic can be reduced to the economic, or deduced from it -- or the other way around. . . . (T)he influence of the overall social (including physical and cultural) structure always enters in between one event and another, and giving to each of them . . . the field of its effects, whether intentional (conscious), or not. (Godelier, 1972: 259)

From an evolutionary perspective, the effect of the material-techno-economic domain is primary in a cumulative and teleological sense. This holds as a general principle as the elaboration of socio-cultural forms presupposes the material means for their realization. And the material means are obtained only through economic processes. But in shorter term analyses, such as the synchronic one of this study, there is no simple causal relationship flowing from a material-techno-economic base to structure to superstructure. There is evidence to demonstrate mutually limiting effects in the correspondence between economic and non-economic domains within a system and also for individual behavior (Cook, 1973: 816, 819; Godelier, 1972: passim; Ribeiro, 1970: 428; Vogt and O'Dea, 1975: passim).

Range of Alternatives

The point to be emphasized is the mutually limiting effect operating between different domains of human reality. This can be conceived as a system of constraints and incentives which set limits or ranges of tolerance around possible forms of organization and individual behavior which can appear in any one.

For economic activity these limits arise partially from within the domain itself, those things directly involved in the production, transfer and use of goods and services. These are set by the physical resources present, i.e., what can be extracted and used given climate, minerals, flora and fauna. Technology sets parameters in that equipment, knowledge, skills and techniques contain possibilities and limits to what, how much, and in what state of transformation things from the physical environment can be exploited and put to use. Technology also requires certain necessary relationships between individuals and groups as in the organization of work, specialization or cooperative effort. The relationship between the size of population, its physical environment and technology may lead to differential access to and control over productive resources. This limits what individuals and groups have to work with to acquire a living. The economic infrastructure sets limits, e.g., the presence, extent and complexity of markets, transport and regulatory institutions (including development agencies in the case of the two villages studied).

Combining these parameters, one can delimit the range of possible forms that economic activity can take. The particular combination has implications for the productivity and efficiency of management units, sectors and the economy as a whole. Given a configuration of these

things (which may differ across management units), there is likely to be a range of possible and viable alternatives which management units can pursue, not all of which are equally materially rewarding. This range is constrained by the upper limits of productivity and efficiency given resources and opportunities present and at the lower end by the imperative to produce, make or earn enough to ensure the viability of the management unit.

For specific management units this range may be wide, for others narrow. For instance, an agricultural household with plenty of land and resources has more latitude in specific production strategies, levels of productivity and efficiency than a household with a small plot and few resources from which it makes a living. The minimal levels of productivity and efficiency that ensure adequate income for survival are different for each. In any situation, performance is bounded by the maximal and minimal possibilities contained in the resource and opportunity structure.

The only obligation a management unit has, is to fall somewhere in this range. Economic performance is not solely conditioned by the maximum material return, but also by the floor of viability below which it is possible for the unit to maintain and reproduce itself. Where each unit, and by extension the economy as a whole, falls in this range is also conditioned by the social and cultural environment in which it operates (Godelier, 1972: passim; Sahlins, 1972: passim; Nair, 1969: Chapter 29).

> Within the framework of a given technology the level of operative efficiency . . . will be determined in the final analysis, not by the olympian heights of the potential of production and profit, but by the floor of economic and technical feasibility and social expectation below which it is impossible

> to farm. And the scale and spread of efficiency . . . will depend upon whether this floor is the same for all, or different for various strata and sections. If there is a significant differential in levels, there will be a corresponding differential in response and effort, even to similar and equal opportunities. (Nair, 1969: 231-232)

It is in the interior-exterior relationship between economic and non-economic domains that economic behavior is to be understood. As non-economic activities and relationships involve material means for their realization they have economic implications. Furthermore, it is in these relationships and activities for which things are produced, transferred and used that objects or economic process take on definition and meaning which they do not find in themselves (Godelier, 1972: 257). It is not a matter of more being better, but rather more in relation to what, and more so, how much of what for what purpose.

The need for a cultivating household to acquire material things is related not only to biological requirements and the personal likes and dislikes of its members. The household also exists socially. The various rights, duties, and obligations which stem from relations with kin, fellow community members and subordinate-superordinate relations (e.g., a state or landlord who makes claims on production or income), require material means and energy for their accomplishment. These also act as demands which must be met (Wolf, 1966: 1-17). The floor of viability thus is based on biological needs and social needs which may determine the minimal and optimal levels in the range of possibility.

By optimal level I mean that level of productivity and efficiency necessary for the discharging of obligations and the support of non-economic activities, relations and institutions. This level does not necessarily correspond to the maximum possible production of goods and

services, "but this optimum expresses the 'social necessity' of their production" (Godelier, 1972: 290). This represents a cutoff point above which production of goods and services fulfills no function. In the absence of goods and services entering into social competition -- particularly in primitive subsistence economies -- there is no need to produce beyond the limit of socially necessary wants (Godelier, 1972: 290). Even where goods and services do enter into social competition to demonstrate such things as difference in status, prestige or power, there is an optimal cutoff point in their production. They may be monopolized by some while others are denied their acquisition by convention or law. With similar effect, people often pursue strategies of status maintenance (which does not deny that some attempt upward mobility). If a particular level of production or acquisition satisfies this need and also other duties and obligations, there is no need to produce or acquire more even if it is available. This is particularly true for those in positions of dominance.*

Surplus capacity to produce may be present and may be perceived by the actors. But there is no necessity for that surplus to be realized. "The system, having thus defined sufficiency, does not realize the surplus of which it is perfectly capable" (Sahlins, 1972: 68).

The point to be emphasized is material means and the wants and needs they satisfy do not appear in an economy on their own and are not acted upon by individuals in a vacuum pursuing their idiosyncratic

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*One is reminded of a remark attributed to Nelson Rockefeller, the substance of which was being, a Rockefeller, i.e., being at the top of the socio-economic ladder, what else is there to do in life but become President. There are counterparts on a smaller scale in the two villages studied.

utility. Value and utility are properties of things existing in relational contexts. Things produced, transferred and used, are parts of the total system of relations which make up the life of a particular population.

The explanation then, for different strategies, organization and performance in economic activity is linked to the socio-cultural environment. This becomes most evident where controls are made for differences in resources and opportunities across a population. The range of possible forms is ultimately bounded by material resources, technology and the infrastructure which set minimal and maximal levels. But where there is a gap between the minimal and maximal levels, the influence of socio-cultural constraints and incentives is most evident.

For agricultural production, the range of forms, strategies and performances in the two villages studied is very wide. Even within categories of cultivators defined by their access to and control over resources, the range is still wide. To what degree this is a function of purely technical and infrastructural considerations and to what degree this is a function of the socio-cultural environment are the main questions of the study.

CHAPTER II

SELECTION OF SITES AND GENERAL BACKGROUND

Selection of Sites

The selection of Rajasthan as a research area was guided by several considerations. It is "less developed" than Haryana, Punjab and parts of Uttar Pradesh which have undergone significant changes in the organization of production and are well down the road toward mechanized and commercialized agriculture. Rajasthan was not chosen for its pristine state but on the desire to analyze the process of change from the ground up. As this study is a first step in a continuing line of research on problems of economic change, I wanted to study agricultural production and community life at a point prior to the full effects of "modernization."

Another consideration was familiarity with the region. Both I and my wife* had lived in Rajasthan for a number of years (1966-68) and were conversant with rural life, agricultural practices and programs and local dialect. Language was an important factor. Rajasthani is a dialect of Hindi which I speak. Language competency is extremely important for research and helps immeasurably to keep one's sense of balance while in the field. The ability to communicate avoids the paranoia of the

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*She conducted research concurrently in the same villages on the effect of economic change on political attitudes and behavior. (See Michie, 1975: passim.)

"outsider" and permits easy access to information and control on the quality of data. A major problem in using interpreters, particularly for graduate students, is the rather equivocal relationship involved in supervision. Interpreters are usually other university students, one's peers. All interviews and collection of materials were done personally with a bit of help on the few occasions when the local dialect was too thick.

In short, Rajasthan was selected partly because of its familiarity. Conditions were conducive for field work on the problems outlined. The choice also avoided many of the logistical problems facing anthropologists entering the field for the first time.

As one of the problem areas was the effect of development programs on economic behavior, I wanted to focus on those districts involved in the Intensive Agricultural Areas and High Yielding Varieties programs (IAA and HYV). Jaipur and Bharatpur districts were chosen because other districts in these programs had been affected by prolonged drought. Originally Udaipur District in southern Rajasthan was to be surveyed as well. It has a unique pattern of small holdings, high percentage of irrigated land and double cropping. Work in Udaipur was not possible. Cultivators had been unable to grow crops for over a year and it would have been awkward to ask them about agricultural production under famine conditions. Another district, Sri Ganganagar, was a possibility. It is one of the most productive districts in India, is canal irrigated, but lies on the border with Pakistan. Aside from Government of India's objections to research being done in border areas, the district is populated heavily by Punjabi migrants. This would have added a complicating

ethnic variable. The choice ultimately came down to Jaipur and Bharatpur.

Although these districts were among the first to participate in the programs, not all villages were covered by them initially. It was important to chose villages which had been early participants. I assumed that such villages would be affected more and differences across cultivating households would be more pronounced than in non-program areas. As the study was to test for and examine different responses of cultivators to their economic environment, it was essential to find villages where the bounds of tolerance were the greatest and variations a possibility.

Bharatpur and Jaipur districts also provide bases for comparison. Bharatpur lies in a richer agricultural zone, is one of the more productive districts in Rajasthan, has a high degree of mechanization and adoption of new agricultural techniques and is generally considered a more "progressive" region. Jaipur on the other hand is not as well endowed in physical resources, is not as affected by development programs and although a "good" agricultural area is not as "progressive" as Bharatpur. I was particularly interested in examining the effects of mechanization, development programs and the commercialization of agriculture. Each district provides a control on the other with regard to the effect of these things on local production patterns and cultivators' response to them. This comparative framework helped sharpen and modify the analysis and conclusions, each area contributing to the study as a whole.

In both districts, the choice narrowed down to a handful of villages. Final selection was based on distance from urban centers.

Villages closer to towns had a high degree of truck farming and gentlemen farmers. The research problem also focused on the effect of socio-cultural features on economic behavior. Thus, I assumed that villages with numerous castes engaged in agriculture would demonstrate the effect of divergent obligations, expectations, life-styles and dominant-subordinant relations on economic activities. Another consideration was the receptivity on the part of villagers to outsiders coming into their midst. Both villages were extremely hospitable and people were very patient and interested as field work progressed.

In both villages, there were problems in drawing a sample of cultivating households. I wanted to interview only those people making production decisions: actual cultivators. Unfortunately, there are no lists of cultivators. In Hanumangarh (Jaipur District), I attempted a house-to-house survey to distinguish cultivators from non-cultivators and landowners from tenants. This proved unmanageable as a minimum of one-half hour was spent with each and there are over one thousand households. Furthermore, I received a considerable amount of misinformation, particularly from large landowners who suspected my motives and who were afraid because they owned more land than is permitted under the ceiling legislation.

Sample lists were made from land records with the help of patwaris (land registrars).* They were able to distinguish landlords from owner cultivators and to combine dispersed titles into single management units. Tenants were identified from voters' lists which record each

*Initially I avoided patwaris as they have a general reputation among cultivators for corruption and I did not want to be identified with them. In both villages they were luckily honest and conscientious, a fact corroborated by cultivators themselves.

household by ward. These lists were verified with the aid of informants from the wards.

Seven hundred and sixty households of cultivators were identified in Hanumangarh. Out of a randomly selected ten percent, forty-four were available or willing to be interviewed. In Shivpura (Bharatpur District), one hundred and fifty households were identified, out of which ten were interviewed.* As such, the sample represents "informants," and the field method employed is a combination of survey research and participant observation in which any biases of mine are controlled by the random selection of these "informants."

Detailed information on agricultural production and other economic activities was collected from each person interviewed. All information was based on their activities and performance during the cropping seasons of rabi, 1971-72, and kharif, 1972, and is based on recall. Though it might have been better to have collected information for the two seasons in the same crop year, the timing of field work made this impossible.

The sample itself is a stratified one: the cultivators were chosen by land size. The small category includes those households operating five or less acres. The medium size includes those with more than five and up to and including ten acres. The large category holds more than ten acres each. In subsequent analysis I further broke down the strata

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*A total of four persons refused to be interviewed. Difficulties in finding other cultivators was compounded by the distance of hamlets in Hanumangarh. After trudging for several miles I would find informants gone for the day. I generally made three attempts in such cases before giving up. Additionally, several respondents had moved away either permanently or for seasonal work.

by type of landholding and have also distinguished owner cultivators from tenants and owner-cum-tenants.

Physical and Demographic Background

Rajasthan is in the northwest central part of India (see map, Figure 2.1). Geographically and historically, it has been on the periphery of the country. It is not part of the north Indian heartland, the rich alluvial plain of the Jumna and Ganges Rivers. Neither is it on major overland routes or sea coasts -- the major points of entree for invaders over the centuries. The Aravalli Mountains bisecting the state from southwest to northeast and the western Thar Desert are barriers against penetration into the region. Delhi, the historical fulcrum of imperial power in north India, lies to the northeast. Routes to central and southern India lie to the east.

Several important trade routes were in Rajasthan although never under outside control. Camel caravans travelled across the Thar to the Indus valley further west. Another trade route through eastern and southern regions connected Agra with the Gujerat city of Ahmedabad and port cities along the Gulf of Cambay. Aside from these few routes, Rajasthan was not well integrated with other areas. Even today it is only moderately well connected by rail with surrounding regions. The present road network is mainly of the post-independence era (Pal, 1968: 153-160).

Present day Rajasthan is bounded by Pakistan on the west. The international boundary runs through the Thar Desert. To the north are the states of Punjab and Haryana, well watered riverine plains which form the "breadbasket" of the northern wheat growing zone. To the east

lies the Gangetic plain of Uttar Pradesh and Madhya Pradesh, a broken mountainous region of central India. Gujerat, to the south, is also a well watered and agriculturally rich region.

Rajasthan is semi-arid having few rivers, and falls on the tail end of the monsoon from the Arabian Sea and the Bay of Bengal. These two monsoon winds lose most of their moisture across the Gangetic plain and the mountain ranges of Gujerat. In the Thar Desert, rainfall is very scanty; in places of the far west it averages less than six inches per year. Rainfall is higher east of the Aravallis. The southeast portion has an average of thirty to thirty-five inches, and the northeast, between twenty to twenty-five. Most rain falls during the summer months of June through September with occasional winter showers from October into January. Rainfall is highly variable from year to year -- twenty-five percent or more -- resulting in frequent drought. Most rivers of any consequence are found east of the Aravalli range and are tributaries into the Jumna system to the east (Cobb and Coleby, 1966: 78-96; Spate and Learmonth, 1967: 47-71; Pal, 1966: 9-11; Government of Rajasthan, 1974a: 15-16).

Rajasthan is the second largest state in the Indian Union. It covers some 132,129 square miles, approximately 10.5 percent of the total area. Although the land area is large, Rajasthan has only 4.7 percent of the total population or 25.8 million persons and ranks tenth among the twenty-nine states and territories. This is in large part due to the ecological features described; most people are found where higher population densities can be supported. In the western Thar region the density per square mile drops below nine persons and in the eastern part goes to 476. The state average is 194. It is a predominantly agrarian

state with 82 percent of the population in rural areas and around 85 percent of the rural work force engaged in agriculture (India Republic, 1971: 3, 7-29; Government of Rajasthan, 1974b: 30-34).

Rajasthan is part of the wheat zone of north India. Agriculture as in most of the country, is predominantly rain fed. The major cropping season, kharif, is during the monsoons: July/August through October/November. The main crops taken are millet, sorghum, and maize as well as subsidiary crops of lentils and gram. The other main season, rabi, in which wheat, barley, gram, and oilseed are grown runs through the cold dry winter of October/November through March/April. These crops are grown on irrigated land, or that not planted during kharif which retains moisture from the monsoons. The rabi crop is aided by occasional light showers in January and February. A third interim crop, zaid rabi is possible on lands with good irrigation and runs through the dry summer months between rabi and kharif. Small millets can be grown, but the area under cultivation is miniscule in comparison with the other seasons.

Most cropped land is under cereals. In 1971-72, 87 percent was planted to food grains, 9 percent to oilseed and the rest to other fiber and cash crops (see Table 2.1).* Of the total area planted, only 17 percent was irrigated (Government of Rajasthan, 1974a: 19-34). The emphasis on food grains is an indication of a major orientation toward subsistence grain agriculture.

Although most acreage is under millets (bajra), the staple for most cultivators, yields are low compared to other crops. Millet is an

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*The figures refer to gross cultivated area. Double cropped land is counted twice (See Table 2.1).

unirrigated kharif crop and is thus subject to fluctuations in productivity. For instance, bajra yields ranged from 40 to 120 kilograms per acre during 1968-70. Irrigated rabi crops fare better. During the same years, wheat yields were between 410 to 535 kilograms per acre (Government of Rajasthan, 1974a: 18).

Despite the fluctuations, productivity is below the levels possible for both irrigated and unirrigated crops. The different yields are partially due to the nature of the crops themselves. Wheat and barley yield more than millets and maize when all are grown under optimal conditions. However, before we begin our discussion of productivity, some more regional background is in order.

History

Because of its geography, Rajasthan has been on the fringes of central historical events. Until 1947-56, it was divided into several princely states which had never been absorbed into north Indian empires. Rajasthan's history is filled with stories of maharajas and battles fought among competing princes and against imperial domination.

Over the past one thousand years the Rajasthani princes maintained their autonomy against the Muslim Afghan and Mughal empires and the Marathas of central India. Aside from attempts to bring central and southern India under their hegemony, the focus of the empires was to the east, along the Gangetic plain and to the northwest into the Punjab and beyond.

During the British period, Rajasthan, with the exception of one province directly in the middle, never became part of British India, but through a series of subsidiary treaties in the early 1800s, came under

British hegomony. The states retained authority over internal affairs while control over foreign affairs and defense was ceded to the British. The states also provided military contingents and tribute to the government of British India. Present day Rajasthan includes twenty-one erstwhile princely states and chiefdoms, which after Indian independence in 1947 acceded to the Indian Union and were reorganized into the present political and administrative unit in 1955 (Tod, 1957: passim; Kanungo, 1965: 1-6; Pal, 1968: 35-91).

The princely states were organized in a manner similar to other areas of north India before the Muslim dynasties were established in the thirteenth century. Kingdoms were clan territories held by rights of conquest. Members of the ruling clan -- usually Rajputs -- were coparceners of the common estate according to genealogical connection with the founding ancestor. The senior lineage constituted the royal line and following the role of primogeniture and patrilineal descent, the office of raja passed to the eldest son. The raja or chief was in principle, the first among equals and was but one of the many coparceners of the clan territory. Below the senior lineage were other lineages and their subdivisions corresponding to politico-administrative divisions down to the village level. Each level collected revenue and maintained law and order within its jurisdiction. A portion of the revenue was passed to superior levels in the hierarchy and some was retained for maintaining the administrative apparatus -- including the military which could be utilized by the superordinate chief -- and for personal consumption. Leadership positions at all levels were mostly filled according to the rule of primogeniture. This order appears to be feudal and has often been referred to as such, but in actuality is a tribal form of

organization with the trappings of an archaic state (Thorner, 1956: 133-150; Tod, 1957: passim; Fox, 1971: passim; Minturn and Hitchcock, 1966: 10-12; Chakravarty, 1975: 22-39).

This, of course, is an ideal model of state organization. The important point to note is the kin-based nature of the princely states and the idea of the state being a clan territory. In actual practice, the picture was never so simple as evidenced by tenurial and revenue administrative systems.

Land Relations

Land tenure and revenue systems in Rajasthan present a variety of classifications, principles, rights and cesses prior to the enactment of land reform and the regularization of the system for the whole state in the 1950s. One author lists at least forty-five different categories of rights which existed in the various states (Singh, 1964: 45).

In all princely states, rights over the use of land and its products were divided between the cultivator tenant, revenue assignee or grantee and the state in the person of the raja. Land was not private property although tenancies sometimes became heritable, transferable and could be sublet. Most cultivators were tenants-at-will although in some states legal provisions gave security of tenure to certain classes; this a pre-independence twentieth century phenomenon (Kherie, 1948: 89-90).

Cultivators were either direct tenants of the state or various assignees and grantees. These arrangements fall into two basic categories: the jagirdari system involving intermediaries between the cultivator and the state, and khalsa, or the raja's lands directly administered by the ruler and court.

Under the jagirdari system (not too unlike the zamindari system under the British), assignees and grantees were clansmen of the ruling house. Some also were subjugated chiefs not entirely dispossessed of their territories. Grants were also given to managers of temples, mosques, educational and charitable institutions for their support, and to various officials and individuals who had performed services for the state. These grants and assignments could be in perpetuity or only for the lifetime of the assignee. Most depended on payment of revenue, but others were free grants based on alliegance to the grantor and ultimately to the raja. Assignees, or jagirdars, did not own the land, but only had rights to revenue (Singh, 1964: 21-57; Kherie, 1948: 83-94).

Under the khalsa system, cultivators were the direct tenants of the raja and revenue was collected by his representative. The latter often was a tax farmer who bought the right to collect revenue -- whatever he could extract -- and passed a fixed sum on to the state. In other areas, revenue collection was administered by a tehsildar; a regular official of the state bureaucracy. Under the khalsa system, land was either leased out to a general body of cultivators -- and their headman (patel) was responsible for collecting the revenue -- or taxes were assessed directly on individual cultivators or holdings (Singh, 1964: 21-57; Kherie, 1948: 83-94).

Under all systems, tenants were usually chosen from those castes who were traditionally agriculturalists, others who had forgone traditional occupations, or individuals who had reputations for being good cultivators. Revenue was paid in kind as a share of the crop (the ancient division of the grain heap), according to the productive capacity of the land and/or in the form of cash rents based on the market

value of average production. Aside from these rents, taxes, levies and cesses were exacted in the form of free labor (begar) on the raja's or jagirdar's personally cultivated land, festival taxes and for use of common grazing lands (Singh, 1964: 21-57; Guleri, 1916: 467-487; Kherie, 1948: 83-94).

During the 1950s a series of bills were passed which abolished the jagirdari and khalsa systems. Former rajas and jagirdars were allowed to retain land under their direct supervision -- within limits of ceilings provisions -- and they as well as former tenants are now classified as tenants of the state, or khatedars. Virtually all rights of ownership have been extended to them (Singh, 1964: 61-78; Government of Rajasthan, 1952, 1958, 1959: all passim).

Land relations, despite the reforms of the 1950s, remain inequal. The former jagirdars are no longer intermediaries, but have retained large portions of their former lands. Also those cultivators who were favored tenants on large pieces of land, were able to retain it and their dominant position. The reforms, although eliminating the onerous burden of assignees and rajas from the cultivator, did little to redistribute land on an equal basis.

The following data on land distribution are dated as no comprehensive survey has been conducted since 1960-61 (see Tables 2.2 and 2.3). They do, however, point to the basic pattern which had not changed much over the decade preceding this study.

The average ownership holding is about twelve acres although this is a misleading figure. Of those households owning land, 17 percent own about 60 percent of the total in holdings of twenty acres of more. At the low end, 43 percent of owners own less than 7 percent of the land in

holdings of five acres or less. In terms of operational holdings (land owned and leased) the figures do not change very much: the average holding is about fourteen acres. About 19 percent of households operate 60 percent of the land on holdings of twenty acres or more. Similarly, at the low end, 36 percent of households operate less than 7 percent of the land on holdings of less than five acres.* This distribution combined with the fact that most irrigated land tends to be owned by the larger cultivators concentrates productive resources in relatively few hands.

Agricultural Programs

By and large it is the larger cultivators who are the beneficiaries of official agricultural programs. As local elites, they have better access to development and extension officers and are able to command more attention from them. There is also a built-in bias on the part of most extension personnel who view larger cultivators as more productive and efficient, at least potentially so, and see larger scale commercial farming as the way to modernize agriculture. It is also easier to work with a few large cultivators to cover an amount of acreage than it is to thinly spread oneself over many small cultivators.

The current strategy for agricultural change is the outgrowth of problems associated with population increase and poor cropping years in

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*The average ownership and operational holdings in Rajasthan are higher than the national averages: 4.97 and 6.17 acres respectively (India Republic, 1968, 1970: 13 and 48, 52 respectively). This is due to the lower population density of the state and that holdings in the extremely arid regions of the west are by necessity larger if cultivators are to attain bare subsistence. The averages for areas in the eastern part of the state come closer to the all-India averages.

the late 1950s. Agricultural programs were part of the earlier community development schemes and aggregate production had increased but not at a rate sufficient to meet expanding food requirements. A concerted effort was initiated in the early 1960s to increase food production.

The first program, the Intensive Agricultural Districts Programme (IADP) started on a pilot basis in 1960-61 in three districts, one of which Pali, is in Rajasthan. The approach was formulated by a team of Ford Foundation specialists working with the Indian Planning Commission. IADP was gradually extended to thirteen more districts over the next three years and became a model for subsequent programs.

The basic approach channels limited resources into those areas which have the most growth potential. Potential is determined by soils, irrigation facilities, physical and institutional infrastructure and past performance. The approach calls for an "integrated" or "package of practices" which provides cultivators with improved equipment, better physical inputs, cheaper credit and information concerning improved cultivating practices. To give the farmer added incentive to adopt the package, a pricing policy sets minimum prices for major agricultural commodities. These prices are supported by the Food Corporation of India, a public corporation, at receiving centers throughout the states, to protect cultivators from price fluctuations and thus ensure the profitability of the package of inputs (Ford Foundation Agricultural Production Team, 1959: passim; India Republic, 1969: 106).

The scheme involves several other measures including land reform. Land reform refers specifically to security of tenure rather than land redistribution. It is based on the rationale that cultivators are unwilling to invest in land they farm only temporarily. According to

this line of reasoning, security of tenure enables cultivators to invest productively for their own self interest. On the assumption that there is insufficient land for everyone to have an "economic" holding, non-agricultural employment would have to be generated for the landless. There is fear that land redistribution would be counter-productive:

> We recognize the need for considering programmes for the relief of those who have no land, and of those who cultivate too little land. But it is imperative to achieve this objective in ways that will not retard the increases in food production which are vital to national welfare. Some progress can be made by arranging for reallocation, improvement and operation of potentially productive lands that are now idle, or are being used very ineffectively. Care should be exercised, however, so as not to break up farms that are efficiently and productively operated. (Ford Foundation Agricultural Production Team, 1959: 29)

It is assumed that low productivity in Indian agriculture is a consequence of backward technology, poorly developed markets and the lack of profitability. Thus it is assumed that cultivators will be attracted to the program if it is profitable. Cultivators are seen as economically rational beings who shift their production strategies in response to profitability.*

The Intensive Agricultural Districts Programme was amended in 1964-65 to become the Intensive Agricultural Areas Programs (IAAP). IAAP was extended into many more districts showing potential for growth. The two villages studied were among the first in their districts to be included. As opposed to IADP, IAAP concentrates on major grain crops rather than comprehensive agricultural development. The same format remains, resting on a combination of extension personnel, improved inputs, credit, price supports and the profit motive.

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*Following this rationale, there is no agricultural production or income tax. This is to provide cultivators with an added incentive.

The real impact, however, has come with the hybridization of cereals. Hybrid varieties of wheat were developed in the early 1960s and after field trials were introduced into those districts under IAAP in 1966-67. This new program called the High Yielding Varieties Program (HYV), was also introduced that year into the two villages studied. Hybrid millets and maize were introduced later. These new seeds present a tremendous potential for increased production and stirred talk in the later 1960s and early 1970s of the Green Revolution in India and the rest of Asia.

Of all the new varieties, wheat has met with the most success. Under optimal conditions the wheat hybrids more than double the production of indigenous varieties. They are shorter and thus not prone to lodging and are more responsive to fertilizer. The aim of the HYV program has been to increase production for each crop in its respective season. The hybrids also have shorter maturation periods, allowing for multiple croppings. In many areas with assured irrigation, three crops can now be taken instead of two.

On the other hand, hybrids require more labor, irrigation, and if not properly fertilized, produce less than traditional varieties. They also require higher investments. The new inputs are available only through monetized markets -- through either the open market or extension agencies and cooperatives. They present cultivators with a new set of relationships and ways of evaluating production performance which is not present for the cultivation of indigenous varieties.

Administration

The administrative framework in which programs are implemented consists of several levels. These levels correspond to parallel political divisions (see Figure 2.2).

Rajasthan is divided into twenty-six districts. Each contains a number of tehsils (revenue units) and panchayat samitis (development blocks). The tehsils are headed by a tehsildar who is responsible for land records, crop estimates and collection of land revenue. Beneath him and his assistants are patwaris who are responsible for keeping land records and crop estimates for their respective "circle" of villages. They are also the officials to whom landowners pay their tax. Patwaris are the most maligned of all local officials. They are generally viewed by villagers as corrupt grasping individuals who take bribes in boundary disputes and either overcharge or pocket revenue money.

Land revenue is based on the quality of land, the basic subdivisions of which are irrigated, unirrigated and pasture land. Land tax is nominal and constitutes a minute fraction of cultivators' overhead. It is the only tax levied on cultivators. In 1972-73, the time in which field work was conducted, government proposed an income tax on persons earning a joint income of more than Rs. 5,000/- ($666.00) from agriculture and business.

The tehsildar is also responsible for certain law and order issues and works closely with the local police. He is also a magistrate and hears some civil cases, usually those regarding land disputes.

The development block covers approximately one hundred villages. At the lowest level are the village level workers (gram sevaks) who work directly with farmers in their circle of approximately ten villages.

They are under the direction of the block staff provided by the state government. This staff is responsible for distributing improved inputs, conducting demonstrations and disseminating information to farmers directly and through the village level workers. These agents are usually university trained specialists in agronomy, plant pathology and other agricultural sciences. They work under an administrator called the block development officer. The entire staff comes under the supervision of the district offices which in turn are responsible to the state ministries.

Each level of administration is responsible to a parallel political body. At the village level, gram sevaks are responsible to the chairmen (sarpanchas) of village councils (gram panchayats) composed of directly elected local representatives (panchas). The block development staff is responsible to the panchayat samiti chairman (pradhan) who is elected from among the members of the samiti composed of village headmen. At the district level, officers are responsible to the district council chairman (pramukh) who is selected from the pradhans who constitute the district level council (zilla parishad). Similarly at the state level, ministry officials are responsible to cabinet ministers. Ministers are members of the states' legislative assemblies and are directly elected from their constituencies.* They hold their portfolios under a Chief Minister according to parliamentary procedures. The only directly elected officials are village council panchas, members of the states' assemblies and also members of the national parliament.

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*Neither state nor national cabinet ministers have to be elected members of the assemblies or parliament. By convention, however, they are members who are then asked by the chief or prime ministers to help form the government.

Most activity locally surrounds the sarpanchas and the pradhan on whose recommendations the administrative staff is supposed to act. Quite often there are problems between the block development officer and the pradhan over the direction of programs. Where elected representatives are weak, the staff predominates. The latter perceive themselves to be experts and resent interference from "untrained politicians." Where there is a strong pradhan -- usually through links with politicians and parties at the district and state levels -- the staff must follow his directions or risk transfer or suspension through pressure applied at higher political levels.

Local elections, although officially non-partisan, are openly supported by political parties who try to co-opt local leaders for state and national level elections. Locally political support rests on patron-client relationships which stem from ties of economic dependence on dominant landed elites. It is this local elite, the large landowners and cultivators who through their control over local patronage command the attention of the administrative staff.

In theory, programs are implemented through a two-way channel of communication. The state government -- in whose jurisdiction development, agriculture and land relations lie -- acts on target guidelines established by the Indian Planning Commission in the national annual and five-year plans. Annual targets set the number of acres to be brought under hybrids, tons of supplies to be distributed, and extra production expected. These targets are broken down by area -- ultimately to the level of the village level worker who tries to fill his quota by encouraging cultivators to join the program. He makes an annual estimate of what is needed in his "circle" and passes this requrest to the

block staff. The VLWs' requests are compiled and sent to the district offices and from there to the state ministry of agriculture. The state is responsible for procurement of requested supplies and seeing that they arrive at the local level.

Upon arrival, supplies are sold either at the block offices or through cultivators' cooperatives. During the year under study (1971-72), seed and pesticides were distributed through the block and fertilizers through the cooperatives. Cultivators can also buy these supplies on the open market from government (National Seeds Corporation) or private stores in major towns. Inputs are usually more expensive from the latter although they are often more readily available.

To help finance these new inputs, several credit schemes have been started. Private banks were nationalized in 1969 and rural branches have been established since then to make credit available to cultivators. The plan is to have banks at every tehsil headquarters. Loans are available for numerous agricultural purposes: short term recurring expenses, land improvements, mechanization, ancillary industries such as dairying, poultry and fisheries, and to enable local merchants supply improved inputs and equipment. Interest rates range from 8.5 percent for short term loans (up to one year), of less than Rs. 2,000, to 10.5 percent for short and medium term loans (one to seven years) of more than Rs. 2,000/-.*

Short and medium term credit is also available through cooperative societies who receive their lending capital from memberships and the local banks. Anyone may join the cooperative upon payment of a fee but

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*Information is from interviews with the Manager of the State Bank of Bikaner and Jaipur, Hanumangarh.

people are usually required to own 2.5 acres to qualify for loans. Interest rates are 9 percent for all loans and these are given mainly in kind, e.g., fertilizer.* The administrative secretary of cooperatives is a government employee. Officers are elected by the members and control over the dispersal of loans and supplies tends to be a monopoly of large cultivators. The cooperative elections also often are arenas for contests between local political factions.

Cultivators also use other sources of credit in the larger towns. The Land Mortgage Bank in Jaipur, for example, is a popular source for financing the purchase of pumping sets. Repayment periods are longer from these sources which cultivators prefer.

But the most utilized source of credit is the village moneylender. His credit is readily available either in cash or kind from his shop. The relationship with the moneylender is a perduring one and both parties know each other well. Credit can be used for any purpose. Repayment schedules are flexible, but the credit is very expensive. Interest rates vary from 12 to 50 percent. The role of the moneylender in the local economy will be discussed in greater detail later on.

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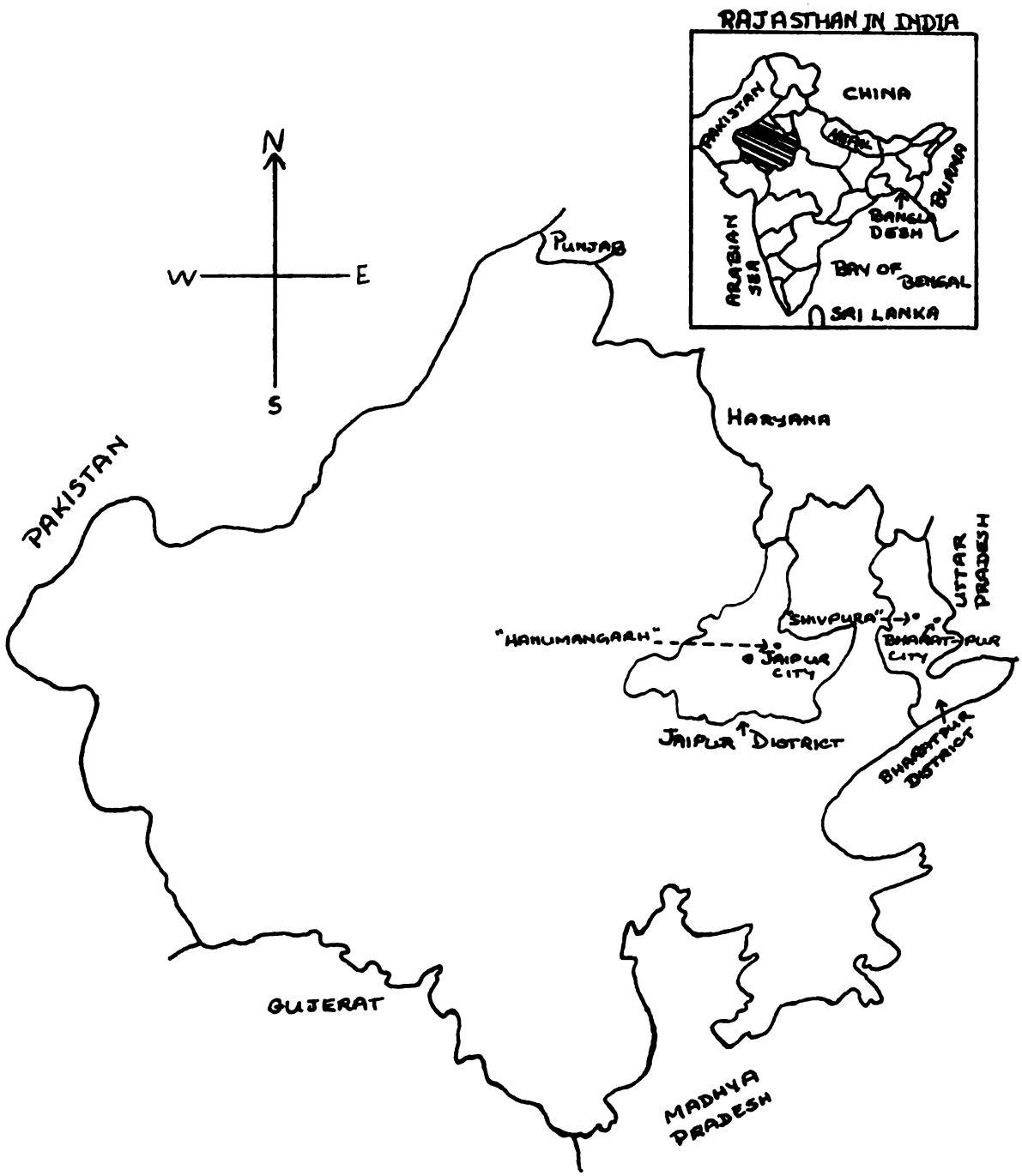
*Information is from interviews with the Secretary of the Hanumangarh cooperative.

FIGURE 2.1. Map of Rajasthan



Source: India, Republic, 1965.

TABLE 2.1. Area and Production of Principle Crops in Rajasthan, 1971-72

	Acres	Metric Tonnes	Yield @ Acre (Kgs.)
Cereals	22,108,128	5,017,184	
Bajra	12,601,523	1,363,322	108
Jowar	2,281,370	252,613	111
Maize	1,886,386	751,000	398
Wheat	3,740,548	1,888,673	505
Barley	1,098,575	574,879	523
Rice	329,599	159,435	484
Small Millets	170,127	27,262	160
Pulses	9,152,423	1,317,643	
Gram	4,058,128	884,773	218
Other kharif Pulses	4,958,437	394,145	79
Tur	84,343	20,159	239
Other rabi Pulses	51,515	18,566	360
Oilseed	3,326,838	393,162	
Sesamum	1,557,355	81,337	52
Rape & Mustard	947,492	122,698	129
Linseed	233,859	29,811	127
Groundnut	582,903	158,753	272
Castor Seed	5,229	563	108
Other	1,043,151		
Sanhemp	31,929	4,510	141
Cotton	825,428	392,799	476
Ginger	254	161	634
Chilies	99,637	23,215	233
Sugar Cane	68,111	1,203,153	1,766*
Potatoes	4,184	5,474	1,308
Tobacco	13,608	3,823	281

Source: Government of Rajasthan, 1974a, pp. 18-28.

* In terms of unrefined sugar.

TABLE 2.2. Distribution of Land Ownership:
Rural Rajasthan, 1960-61

Size Category (Acres)	Number of Households			Area Owned			Average Holding (Acres)
	No. ('000's)	Percent of Total Owners	Percent of Total Households	Acres ('000's)	Percent of Total Area	Cumulative Percent Total Area	
0.00*	109	0.00	3.69	00	0.00	0.00	0.00
0.00 - 0.49**	373	13.10	12.62	23	0.06	0.06	0.06
0.50 - 0.99	68	2.39	2.30	51	0.15	0.21	0.75
1.00 - 2.49	315	11.06	10.65	553	1.58	1.79	1.75
2.50 - 4.99	457	16.05	15.46	1690	4.83	6.62	3.70
(subtotal)	(1322)*	(42.60)	(44.72)	(2317)	(6.62)		(1.91)**
5.00 - 7.49	368	12.93	12.45	2259	6.46	13.08	6.14
7.50 - 9.99	253	8.89	8.56	2240	6.40	19.48	8.85
(subtotal)	(621)	(21.82)	(21.01)	(4499)	(12.86)		(7.24)
10.00 - 12.49	193	6.78	6.53	2134	6.10	25.58	11.06
12.50 - 14.99	138	4.85	4.66	1892	5.41	30.99	13.71
15.00 - 19.99	200	7.02	6.77	3440	9.83	40.82	17.20
(subtotal)	(531)	(18.65)	(17.96)	(7466)	(21.34)		(14.06)
20.00 - 24.99	122	4.29	4.13	2734	7.81	48.63	22.41
25.00 - 29.99	86	3.02	2.91	2331	6.66	55.29	27.10
30.00 - 49.99	172	6.04	5.82	6506	18.59	73.88	37.83
50.00 & Above	102	3.58	3.45	9138	26.12	100.00	89.59
(subtotal)	(482)	(16.93)	(16.31)	(20709)	(59.18)		(42.96)
Totals	2956* 2847**	100.00	100.00	34991	100.00		12.29** 11.84*

Source: National Sample Survey, Report No. 144, Table 5.13, 1968, p. 140 and Report No. 162, Table 28, 1970, p. 110.

* Includes those households owning no land or less than 0.005 acres.
** Excludes those households owning no land or less than 0.005 acres.

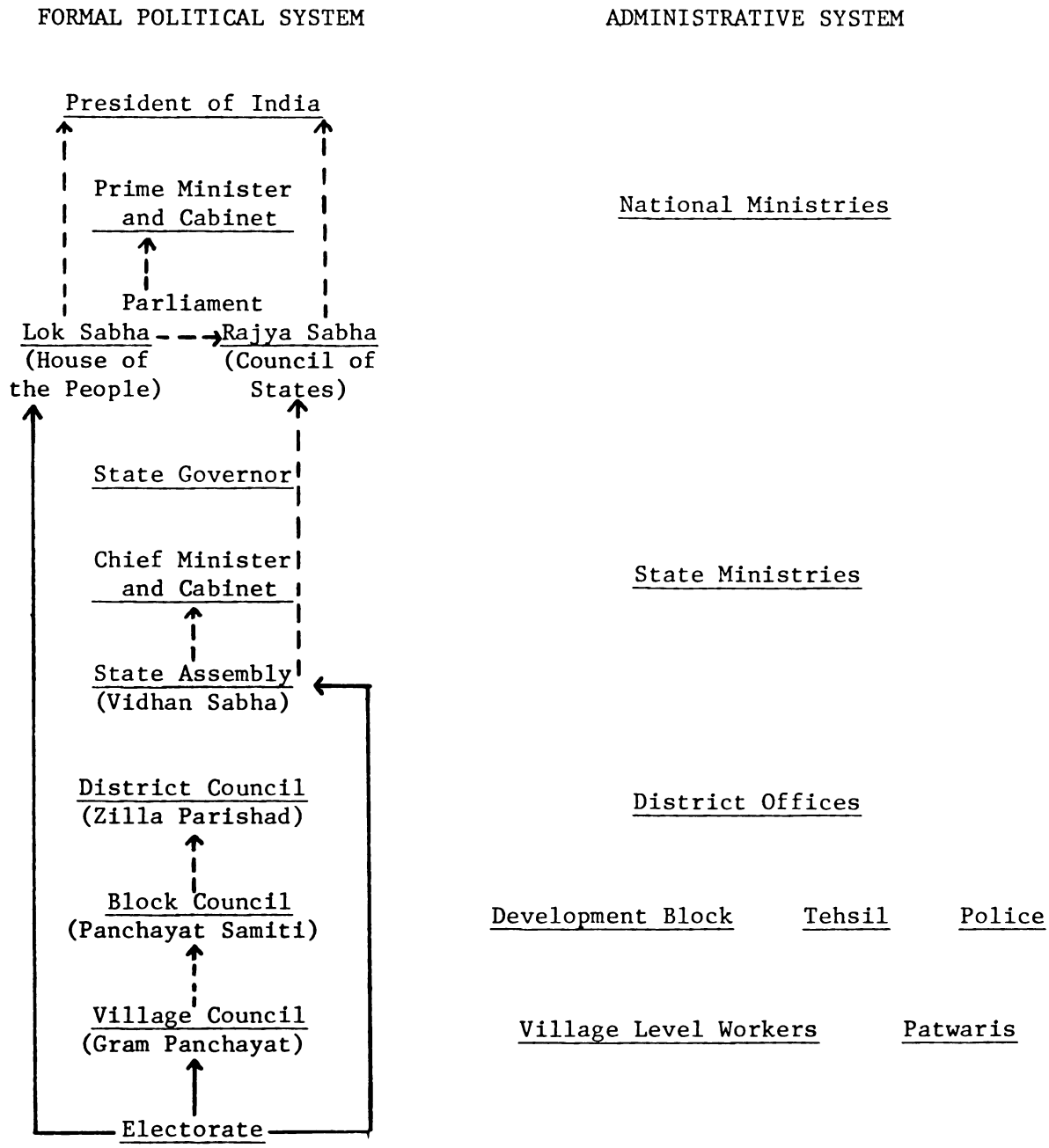
TABLE 2.3. Distribution of Operational Holdings: Rural Rajasthan, 1960-61

Size Category (Acres)	Number of Households			Area Operated			Average Holding (Acres)
	No. ('000's)	Percent of Total Operators	Percent of Total Households	Acres ('000's)	Percent of Total Area	Cumulative Percent Total Area	
0.00*	350	0.00	11.84	00	0.00	0.00	0.00
0.00 - 0.49**	64	2.46	2.17	10	0.02	0.02	0.16
0.50 - 0.99	46	1.77	1.56	37	0.10	0.12	0.80
1.00 - 2.49	335	12.85	11.33	617	1.69	1.81	1.84
2.50 - 4.99	490	18.80	16.58	1856	5.08	6.89	3.79
(subtotal)	(1285)*	(35.88)	(43.48)	(2520)	(6.89)		(1.96)**
5.00 - 7.49	374	14.35	12.65	2337	6.40	13.29	6.25
7.50 - 9.99	265	10.17	8.96	2377	6.50	19.79	8.97
(subtotal)	(639)	(24.52)	(21.61)	(4714)	(12.90)		(7.38)
10.00 - 12.49	197	7.56	6.66	2200	6.02	25.81	11.17
12.50 - 14.99	143	5.49	4.84	1978	5.41	31.22	13.83
15.00 - 19.99	197	7.56	6.66	3466	9.48	40.70	17.59
(subtotal)	(537)	(20.61)	(18.16)	(7644)	(20.91)		(14.23)
20.00 - 24.99	133	5.10	4.50	3023	8.27	48.97	22.73
25.00 - 29.99	80	3.07	2.71	2200	6.02	54.99	27.50
30.00 - 49.99	177	6.79	5.99	6807	18.62	73.61	38.46
50.00 & Above	105	4.03	3.55	9644	26.39	100.00	91.85
(subtotal)	(495)	(18.99)	(16.75)	(21674)	(59.30)		(43.79)
Totals	2956* 2606**	100.00	100.00	36552	100.00		14.03** 12.37*

Source: National Sample Survey, Report No. 144, Table 7.13 and Table 8, 1968, pp. 159, 161.

* Includes those households operating no land or less than 0.005 acres.
** Excludes those households operating no land or less than 0.005 acres.

FIGURE 2.2. Political and Administrative Hierarchy*



Key: Directly elected: ——→
Indirectly elected: - - - →

* Adapted from Michie, 1975, p. 44. State Governors are appointed by the President.

CHAPTER III

THE SETTING: HANUMANGARH AND SHIVPURA

Hanumangarh

The village selected in Jaipur District, Hanumangarh, is the one in which most time was spent.* Hanumangarh is situated about seventeen miles northeast of Jaipur city, the state capital and district headquarters. The village is well connected by a paved road which runs from Jaipur through the village to the city's reservoir a few miles beyond and ultimately connects with the town of Dausa on the Jaipur-Delhi railway line. Jaipur is about forty-five minutes away and buses run at intervals of an hour to two hours throughout the day.

Hanumangarh is a large village in both population and area. In 1971, there were about one thousand households and a total population of just over five thousand (see Table 3.1). About three thousand live in the village proper and the rest are distributed among the thirty-two hamlets in the surrounding area. These hamlets range in size from just a few households to over fifty and each is inhabited by cultivators of the same caste. Shaped like an irregular, slightly bent potato, Hanumangarh is about five miles in length and two miles in breadth covering an area of just under nine thousand acres.

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*Nine of the sixteen months, from July 1972, to May, 1973, were spent in Hanumangarh.

Although the village meets the minimum population criterion for classification as a town, it falls short on other dimensions such as population density and percentage of workers not engaged in agriculture. According to census materials, the total work force is almost 1,600 persons, male and female (see Table 3.1). Out of these, about 60 percent are engaged in agriculture as either cultivators or laborers; a figure lower than the state average (see p. 57 above). That most women were reported as non-workers does not square with field observations as women of cultivating households shoulder a substantial work load. Many males returned as workers in household industry and construction, perform these occupations part time along with agriculture. These are mainly the low caste leatherworkers and are the pool from which most agricultural laborers and tenants are drawn. A major part of their income is from agriculture.

Hanumangarh lies in a valley between hills, upcroppings of the Aravalli range which pass through the district. The valley opens on the south-southwest to a plain which extends to another row of hills just before Jaipur. The Dhund River flows through this plain and one of its branches, little more than a dry wash outside of the monsoon season, touches the southern village boundary. Hanumangarh proper is located at the foot of the western range of hills which rise abruptly and form the western boundary of the village. To the east lies another range of sloping hills which form a cul-de-sac in which a neighboring village is found. The Banganga River flows in from the northwest, and is dammed through the eastern range. The reservoir forms the northern village boundary.

The village lands are bisected by a watershed of low lying sandy hillocks. To the north, drainage is into the Banganga and to the south into the Dhund. In the northern zone, soils are a light, sandy alluvium with low moisture retention. Due to the reservoir, however, the water table is high (thirty to sixty feet) and there is more land under irrigation than in the southern part of the village. To the south, soils are also alluvial, but heavier and more compact. Water lies at a depth of eighty to one hundred twenty feet.

Irrigation in the southern half is problematic and expensive. There are no canals, ponds or streams and thus, all irrigation is from open dug wells.* Wells are one of the most expensive investments a cultivator can make. They are ten to twenty feet in diameter and costs escalate with depth. Investment in irrigation is well worth the effort but most land is rain fed.

Another problem at the southern end of the village is the presence of deep gullies, up to sixty feet, cut by the tributaries and branches of the Dhund. A few small dams, or bundhs, have been built across the larger gullies, but very little has been done to check the fingers of erosion encroaching on cultivators' fields. Every monsoon, a bit more land is eaten away.

Although Hanumangarh covers a large area, a substantial part of the village lands are not cultivable or are not under cultivation (see Table 3.2). Of the almost nine thousand acres, only about 3,400 or 37 percent are under cultivation. Of this, however, a large portion of land is under irrigation, nearly one thousand acres, or 29 percent, which is

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*The same kind of wells are used in the northern zone as no irrigation is permitted directly from the reservoir.

higher than the state average (see p. 57 above). This was one of the reasons why the village was included in the IAA scheme.

About 2,500 acres of forest land are under the management of the state forestry department. These lands are used for grazing and firewood upon payment of a nominal fee to the forestry officers. This area extends along the western range of hills and was formerly a hunting preserve of the Maharaja of Jaipur containing a variety of wild game, blue buck, boar, sambhar, and tiger. The present forest is sparse, scrubby second growth. During the 1950s contracts were given to woodcutters who stripped the hills practically clean. The animals were driven out -- much to the villagers' delight as game eat crops and attack people. But destruction of the forest has had a deleterious effect on rain catchment and has increased erosion. Foliage is used as cattle fodder during the dry summer months and trees are stripped bare as grass is exhausted several months before the monsoon starts.

A large portion of land is fallow which with cultivable wastes lies primarily in the watershed which is uneven and criss-crossed by gullies. This could be cultivated with major investments in land levelling and wells. It can yield a sparse, monsoon crop if the rains are regular. Some of this land has been given to landless scheduled caste households (primarily the leatherworkers) in allotments of 3.13 acres. Most have been unable to cultivate it due to its condition and also because of violent opposition from caste cultivators who use it to graze their animals.

Residential areas, stream beds and dry washes, roads and hill areas not under the forestry department also account for a large part of the total area. Dry washes and stream beds often are pathways between the

hamlets and the village proper. In places they are encroached upon: people enclose a plot with an earthen wall and begin cultivating, and may sometime thereafter make a claim for title to the land. The hilly areas, devoid of top soil, are unsuited for cultivation. They only have a few trees and support some grass for grazing animals during the rainy season.

The onset of the monsoon season is one of the more spectacular occurrences in Rajasthan as it is in the rest of India. It is preceded by the hot, dry months of April, May and June during which daytime temperatures sometimes exceed 115° F. Frequent dust storms blow in from the Thar Desert. Dust penetrates everything, no matter how tightly closed. These storms rarely last longer than one-half hour, and while uncomfortable, do bring some respite. They are often followed by brief light showers which bring the temperature down.

Throughout summer, a hot dry wind blows from the west, the loo, which acts more like a blowtorch than a cooling agent. The only relief comes at night as heat irradiates rapidly from the soil after sunset and night temperatures drop to a comfortable level. Just before the monsoon the countryside looks baked brown, trees are bare and an ever present chocolate dust haze hangs in the sky.

With the first monsoon showers in July, everything seems to rejuvenate, including people. Dry washes become torrents and village lanes, streams. Foliage appears on trees and grass begins to grow almost overnight -- as do the insects. Temperatures drop, but it becomes humid and sticky.

With the first rains, cultivators begin planting the kharif crop. August, the month of Savan, after the crops are in, is one of the most

beautiful times of the year and is the subject of much song, poetry and celebration. Fields, pastures, trees and hillsides are suddenly green. Life, as if having forsaken the world, has suddenly awakened and dramatically reasserted itself.

The monsoon can be capricious. At the time of field work, the rains began very well then slackened and stopped. The kharif crop began to wither and dry. Only after a month did the rains begin again. But by then the crop was damaged.

Rainfall in Jaipur District averages about twenty-two inches a year, but can fluctuate 25 percent or more. During the 1972 southwest monsoon, only twelve inches fell, primarily in the first few weeks of the three-month season. Combined with rainfall from October to February, the year's total was only thirteen inches, about 44 percent below average (Government of Rajasthan, 1974a: 15-16). The timing and amount of rain has a marked effect on the kharif crop. As we shall see, Hanumangarh was adversely affected.

Shivpura

Shivpura, the Bharatpur village is quite different from Hanumangarh. It is some sixteen miles from Bharatpur, the district and tehsil headquarters. The village is not on a major thoroughfare. Travelling northwest on a paved road for ten miles from Bharatpur, one turns onto a partially paved road for another four miles from which a rutted and bumpy cart track proceeds into the village. There is a bus service: two buses in the morning and evening connect Shivpura with small towns on either side of the village.

Compared to Hanumangarh, Shivpura is rather small (see Table 3.1 and 3.2). In 1971, there were only 183 households and a total population of just under 1,300 residing in one nucleated settlement. The village is shaped like a rough pentagon and is a little larger than one and one-half square miles, covering just over one thousand acres.

Shivpura is almost totally agricultural and shows less of the occupational diversity found in Hanumangarh. The work force, according to the 1971 census, was just under four hundred persons. Out of these, 84 percent are engaged in agriculture. As in Hanumangarh, field observation throws these figures into doubt as women are again under-represented. Only twenty-eight were returned as workers against the total female population of 588. Women here, as in Hanumangarh, share the work load with the men: particularly the women of agricultural and lower castes such as leatherworkers who do field labor. As in Hanumangarh, the tenant and landless agricultural labor pool is the leatherworking castes.

Shivpura is absolutely flat and has no topographical features corresponding to village boundaries. The village is on a small hillock, perhaps a tell, indicating a long, continuous occupation of the site. This part of Bharatpur District is east of and outside the Aravalli range. There are no streams in the area and drainage, following whatever contours there are, is to the east into the Jumna system.

The soil in Shivpura is a dark, heavy alluvium and in contrast to that of Hanumangarh, retains moisture well. If the rains are good, cultivators can plant an unirrigated rabi crop of wheat, barley or mustard although yields are low, particularly if the same plot is planted during kharif.

The water table is higher than in Hanumangarh, generally between twenty and thirty feet. Well irrigation is not as problematic. The quality of water can vary quite markedly as in Hanumangarh. One well may have sweet water and another, several hundred feet away may be saline or brackish.* Although the water table is higher, wells here are also an expensive improvement. As in Hanumangarh, they are open, dug and masonry lined.

The only other source of water is a pond (talab) on the edge of the village. This collects runoff during the rainy season and recharges the nearby drinking water wells. It serves no irrigation purpose and dries up completely in the summer months.

Shivpura, in contrast to Hanumangarh, covers a small area but has a higher proportion of land under cultivation as there are no large hilly and waste areas (see Table 3.1). According to the 1971 census, of the one thousand acres in the village, about 840 are under cultivation. Of these, 190 acres are irrigated, or roughly 23 percent of the total.

A sizeable amount, 125 acres lies fallow. These lands are in a low lying area which is not very fertile. Poor drainage is a major problem in this part of Bharatpur District. This, and a high water table can produce water logging and salinity in such low lying areas. As in Hanumangarh, land has been given to landless scheduled castes, but in allotments of only two-fifths acres. There has been no opposition to their cultivating it but they have experienced poor yields and it is hardly worth the effort to bring it under production.

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*One of the ironies in the village is that the main well from which clean castes draw drinking water is saline and the untouchable well is sweet.

There is very little unused land upon which to expand agriculture. The village proper takes up fifty acres. The fallow and cultivable wastes, about 14 percent of the area, can only be brought under cultivation with major investments of capital and effort which are beyond the capacities of the village. As such improvements entail drainage, they can only be tackled on a regional basis which involves higher levels of authority and organization.

Most of the agricultural lands are unirrigated and dependent on the monsoon. Shivpura has much the same climate as Hanumangarh, the hot dry summers, dust storms and scorching winds. Daytime temperatures also exceed the 115° mark during the peak of the hot season and nights provide the only relief.

The effect of the first monsoon showers is as spectacular as in Hanumangarh. The only difference is the lack of hills and not so many trees. The brown dusty plains become a sea of green. Shivpura though, did not suffer the effects of scanty rainfall as did Hanumangarh. During the southwest monsoon of 1972, twenty-four inches of rain fell. Combined with the winter rains during rabi and later showers, the year's total was twenty-seven inches, 3 percent above the district average of twenty-six (Government of Rajasthan, 1974a: 15-16).

Shivpura is farther east than Hanumangarh and gets on the average, five more inches of rainfall. This combined with the better soils makes Shivpura and Bharatpur District generally more productive than areas in Jaipur. Bharatpur is one of the better agricultural areas outside of Sri Ganganagar and is usually a surplus producing region. Though Jaipur also often has a surplus, it is more prone to drought.

The latitude the physical environment of Shivpura provides cultivators is wider than that of Hanumangarh. The moisture retaining characteristic of the soil lessens the dependence on the amount and even spacing of rain during the monsoon kharif season. It also allows cultivators to take a winter rabi crop without irrigation, although irrigated land is more productive. Water is more easily available and goes further as fewer irrigations are required than on lighter soils. Hanumangarh as we have seen, is more dependent on good and timely rains. The winter rabi is almost exclusively dependent on irrigation facilities.

Population density is different in the two villages: in Shivpura it is 805 persons per square mile and in Hanumangarh, 438. Pressure on agricultural land though, is about the same. In Shivpura, there are .65, and in Hanumangarh, .63 acres of agricultural land per capita. Although slightly less land is available in Hanumangarh, there are more land resources for other purposes. The hillsides and uncultivated wastes provide more grazing land (and fuel resources). There is more animal husbandry in Hanumangarh than Shivpura and goats are a mainstay of many households. Hardly a goat is to be found in Shivpura. Water buffalo and cows are found in both villages but in Shivpura, they must be fed primarily on chaff. The more diversified natural environment contributes to the greater latitude that people in Hanumangarh have in their economic activities.

Historical Background: Hanumangarh

Historical background is important to the current social and cultural features of Hanumangarh and Shivpura. History has left an imprint

and while both villages share the same broad features, they have had significantly different pasts.

Hanumangarh was an ancient stronghold of the Minas (now a scheduled tribe) who ruled the area as a clan territory. They and other Mina clans built fortresses in the Aravalli hills, ruled their immediate environs and through a loose confederacy, controlled what is now the Jaipur region.

In the late tenth and early eleventh centuries, a series of events took place around which much local lore has evolved. The region was an arena for contests between Rajputs pushed out and invading from the east, and the indigenous Mina chiefs. One Rajput clan, the Kuchwahas, were successful in bringing the region under their control after years of raids and skirmishes with the Minas and other contenders.

Dula Rai, a warrior prince, founded the Kuchwaha dynasty and the state of Dhundar (named after the Dhund River and later renamed Jaipur in the eighteenth century). Dula Rai was expelled as a child from his original clan territory in Gwalior, two hundred miles to the east. He and his mother were taken in by a Mina chief who raised him in a village near modern Jaipur. As a young man, he turned on his mentor, slew him and took the local Mina territory for his own. He contracted a marriage with the daughter of the Rajput chief of Dausa at which point Hanumangarh enters the story.

The legend of the fall of Hanumangarh is often recounted by villagers and bards. According to the local lore, Dula Rai wanted to pass through Hanumangarh on his way to marry the Dausa princess. His way was blocked by the Minas who objected to his flying his standard, blowing trumpets and beating drums -- perogatives of a chief -- as he passed

through. Dula Rai acquiesced but said he was afronted and would have it out with them on his return.

Upon returning with his bride -- and full display of his insignia -- a battle ensued in the gorge where the Banganga River cuts through the hills, east of the village. The Minas were victorious, slaying Dula Rai and his following. But they left the bride alive as they could not bring themselves to kill a woman. Flushed with victory, they returned to their fortress to celebrate with much feasting, drinking and carousing punctuated with quarrels over who showed the most valor.

The bride was left on the battleground, weeping among the bodies of her husband, his kinsmen and followers with their heads, arms and legs cut off. As evening approached, a goddess appeared and asked why she was weeping. The woman pointed to the carnage and related her grief over losing her husband and being widowed so soon. Taking pity, the goddess rejoined the arms, legs and heads to the bodies, put weapons back in their hands and brought them all back to life. The Minas who by this time were thoroughly deep in their cups and quarreling amongst themselves had not posted a watch. Dula Rai stormed the fortress amongst great slaughter and brought Hanumangarh into his domain. A temple dedicated to the goddess, Jamwa Mata, stands at the spot where she appeared and is a special shrine for the Jaipur royal family.

The Minas were allowed to remain in their territory and were given special privileges under the court. They were made guards of the royal insignia, the prince himself, the archives, treasury and seraglio. They were also important functionaries at the coronation of the maharaja. One of the Mina chiefs (not of Hanumangarh) would put the mark of sovereignty, the tilak, with blood drawn from his own big toe on the

forehead of the maharaja being installed (Tod, 1957: 279-282, 347-348; Sharma, 1969: 20-23; Singh, 1970: 55-56).*

A Rajput fort and palace complex stands on the hillside above the village. It dominates the entire countryside and impresses one with the omnipresence of the king and the state that lasted to the 1950s. The Minas claim they built the complex, but this is resolutely denied by everyone else. There is some evidence that it was built in the middle seventeenth century (Singh, 1970: 55), and perhaps on the foundations of the older Mina stronghold. Local lore contends this was one of the early capitals of Jaipur state. Supposedly, Dula Rai shifted his court from Dausa, twenty miles to the east, to Hanumangarh where it remained until it was moved to Amer, twelve miles to the west in the eleventh

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*This practice eventually fell into disuse but is an interesting symbolic inversion of the dominant-subordinate relationship between the Rajputs and the Minas.

Details of the legendary and historical accounts vary greatly in published form and local oral tradition. The establishment of a "true" version and the pursuit of exact historical accuracy are essentially meaningless. What matters is the establishment of Rajput overlordship and the relations between the Minas and the new rulers.

The above legend, recounted primarily by Minas, reflects more the ambivalent nature of their position in society and self-identity which continues down to the present. But for that fatal flaw of drinking, carousing and infighting (which they cheerfully admit themselves), they are a great people who otherwise would attain their proper place in the world. Rulers by birthright, they became subjects. Kshtriyas by right, they are today considered a lowly scheduled tribe and are burdened with the reputation of being thieves and cattle rustlers.

This ambivalence is aptly symbolized by their local mother goddess, Dant Mata (Tooth Mother), who appeared as their protectoress after their defeat by the Rajputs. Calling out to a Mina herder from within the mountain above the village, she said she was about to emerge. As she was horrible to look upon, because of her big teeth, he was not to become afraid, otherwise she would be unable to come out. The herder promised not to be frightened but as she emerged, he took fright. She was stuck half way in and half way out of the mountain. As a result, her powers were diminished and she is effective only within the village territory.

century. This is not substantiated by any evidence other than local lore.

In any event, the time period in which these events occurred was one of constant turmoil. The Kuchwaha princes were but one of many groups of petty chiefs and rajas fighting over a rather small territory. Hanumangarh came under their rule fairly early. The magnificence of Jaipur court and power came much later as the state expanded and relations were established with the imperial regimes in Delhi and Agra. Jaipur was a buffer state which through political and marriage alliances with the Mughals (to the disdain of other Rajput princely houses*), kept the imperial powers out of Rajasthan while submitting to their suzerainity. Jaipur princes served in many military and administrative capacities in the Mughal court.

The part of history most important to Hanumangarh today is its special relationship with the Jaipur court. The village was a khalsa area and never came under the jagirdari system. Revenue collection and land administration at least for the hundred years preceding land reform in the 1950s, was based on the village settlement pattern. Under this system, headmen, patels, were responsible for the tenurial arrangements and the collection of revenue. The patels retained part of the revenue and passed what was due to the tehsil offices located in Hanumangarh proper.

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*Akbar, the great Mughal reigning from 1554-1605, married a Kuchwaha princess by whom Jahangir, his successor was born. The Sisodia gardens on the outskirts of Jaipur were, according to local lore, built for a Sisodia princess from Udaipur who married Maharaja Jai Singh II in 1708. Part of the agreement was that she would not be made to live within the Kuchwaha capital as they had intermarried with the Mughals.

The major tenant castes, Minas, Gujjars, and Haryana Brahmins,* had their own areas in the village or hamlets, and hereditary patels. Cultivators were collectively tenants of the state and individuals occupied land according to their relationship with other coparceners through patrilineal descent from the original settling families. The Minas appear to be the original group and only one clan is represented in Hanumangarh. Other castes, notably the Haryana Brahmins, have up to ten clans (gotras).

Included in this settlement pattern were arrangements for other cultivating groups. The Malis have their own lands and hamlet although they previously lived dispersed on their lands under the control of the Mina patel. Their lands adjoin those of the Minas.

Two other groups of Brahmins, the Parikhs and Gaurs (distinct endogamous units) held land under the maufi system. These lands were provided by the Jaipur court for services and were used to support temples and for personal income. These two groups also have hereditary patels. The Parikhs have their own hamlet and self-cultivate their land although a number of families live in Hanumangarh proper and lease out their lands. The Gaurs also live in the village and either self-cultivate or lease out their land.

A few Baniya (merchant-cum-money lender) families received land from the court. They were purveyors to the local administrative offices and to the maharaja and his retinue when they passed through the

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*The Haryana Brahmins, as their name implies, were brought into Hanumangarh from the outside (Haryana?) under court patronage and settled on uncultivated land several centuries ago. They are rather hazy about the details of their origins but are completely secular Brahmins who retain a Brahmin of another caste as their priest.

village. Several headmen of the Regar (leatherworker) caste also received land. An impoverished family of Rajputs (unrelated to the Kuchwahas) were allowed to settle in the village as were several families of Charans (illegitimate offspring of Rajputs).

The recognized cultivators either tilled the land themselves or sublet it to others. Often sub-tenants were of other recognized cultivator groups. But the main body of sub-tenants were drawn from the low caste communities: Regars, Balais and Khatiks (leatherworkers, tanners and herder-butchers), and occasionally from service castes, e.g., Nais, Khattis, Kumhars, Lohars and Muslim Telis (barbers, carpenters, potters, blacksmiths and oilpressers). Some of these were able to make claims to the land they had cultivated at the time of land reforms, but most land remains with those recognized as tenants under the old regime.

The distribution of land was hardly affected by the land reform. Tenants of the maharaja became tenants of the state, or khatedars. The transfer was facilitated by the careful land records at the tehsil. Recognized tenants upheld their claims more easily than their sub-tenants who with few exceptions were unable to retain land they had worked, often for generations.* A few muafi holders lost some land, but most obtained khatedari rights by being "self-cultivators" or through provisions for khudkasht land. The latter provision allows the eviction of sub-tenants from land retained for personal use.

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*One Regar who had been a sub-tenant of a Gujjar cultivator fought a court case for fifteen years to establish his claim. The case was finally decided by the Rajasthan Supreme Court in his favor although he was unable to get de facto control of the land. He is thousands of rupees in debt.

Land ceilings are ineffective as they are high and easily circumvented. Based on land quality (until 1972-73), they allow thirty standard acres for a family of five and five additional acres per extra family member up to a maximum of sixty standard acres. In Hanumangarh, this was equivalent to thirty-five acres of the best irrigated land for a family of five and as unirrigated land was of lesser quality, much more actual acreage could be retained. Large landowning families usually live jointly and to evade the ceiling, define themselves as separate nuclear families. The effective management unit remains as one.

The actual transfer of rights to khatedars took a period of some six years -- into the early 1960s. Land consolidation was undertaken concurrently as holdings had become fragmented over the generations. Heirs of an estate are given a portion of each type of land. Consolidation was complicated by the need to establish equivalencies in qualities of land and manipulations by more influential cultivators who tried to get the best. Today it is rare to find a khatedar holding more than three separate plots, and these are usually contiguous or in the same vicinity. Cultivators recognize the advantages of consolidation, but did not enjoy the intense hostility and mutual suspicion it engendered.

During this period moneylenders were also able to get land. Under the old regime, land was not a saleable, or mortgageable item. But cultivators were often in debt to moneylenders. Baniyas were the principle moneylending group but some Brahmins and other cultivating castes also were creditors. Outstanding debts were a lien on the personal estate of the debtor and often informal arrangements were made -- with the connivance of a sympathetic patwari -- to give de facto control of

land to creditors. When land became transferable, many cultivators lost land through foreclosure, often for sums a fraction of the land's value. Today it is difficult for a moneylender to foreclose as title transfer in such cases involves hearings before a magistrate (usually the tehsildar) and is a long complicated proceeding. Members of scheduled castes and tribes by law cannot mortgage their land to persons other than their own communities. This was established for their protection, but has given rise to a class of moneylenders in their midst.

As a part of the legislation to guarantee tenurial security, rights have been extended to those cultivators leasing land from khatedars. Such tenants are classified as ghair-khatedars, or sub-tenants, and their names and particulars of their leases are supposed to be registered with the patwari. Rents are controlled and ghair-khatedars may not be evicted except for nonpayment of rent or some other breach of agreement. Although many cultivators lease in land, not a single entry is found in the registry. No landlord is willing to formalize a contract which can lead to permanent rights for the tenant. All leases are oral and rents are well above the maximum set by law.* The legal provisions are easily circumvented if tenants are called hired laborers who work under the owner's supervision. Tenancies are rotated annually to make it impossible for tenants to lay claim to permanent rights. Tenants can claim a plot of land cultivated three years in a row. The burden of proof is on the tenant and leases, as they are oral, are difficult to substantiate. Litigation is long, costly and few tenants

*By law rents, either as a share of the crop, or in cash, cannot exceed one-sixth to one-quarter of the crop or its cash value. The amount depends on what inputs are shared by both parties. In fact, rents range from one-third to three-fourths of the crop.

are in a position to claim their rights. Furthermore, should they try to establish their rights they are identified as trouble makers and no one will lease land to them. If they want any land at all, they must comply with this informal arrangement.

Historical Background: Shivpura

Shivpura's history is not surrounded by events and personages of the semi-mythical past. Local history, despite evidence of ancient occupation is essentially modern Jat history. The origin of the present village, the dominant Jat Thakur lineage and the basic tenor of social life are intertwined with the rise of the Jat state of Bharatpur in the early eighteenth century. Despite the historical differences, patterns of dominance and subordination stemming from differential control over land are remarkably similar to Hanumangarh.

Bharatpur District borders on the districts of Agra and Mathura in Uttar Pradesh. Bharatpur city is thirty-five miles from Agra, an early seat of Muslim imperial power, on the banks of the Jumna River. Akbar, the Great Mughal of the sixteenth century built his capital city Fatehpur Sikri ten miles from present day Bharatpur City. The Bharatpur region is east of the Arvallis on open flat country. Given its terrain and proximity to seats of imperial authority, it was absorbed early into the Delhi-Agra based empires as part of the province of Agra.

As in surrounding regions, the dominant groups in Bharatpur are Jats. From where the Jats originated is a moot question. They established themselves long before the Muslim invasions and claim to have been the original settlers of the area.

The royal clan of the house of Bharatpur, of which the Shivpura Jats are a branch, claim descent from Jadon Rajputs and Lord Krishna, of the Mahabharata and Bhagavad Gita, whose career and exploits took place in the Mathura-Vrindavan region now in Mathura District. Balchand, a Jadon Rajput, resided in Sinsini, now a small village about five miles from Shivpura. Balchand on one of his plundering expeditions, captured a Jat couple, carried them off to Sinsini and made the woman his concubine. By her, he had two sons, one of whom is the ancestor of the Shivpura lineage and the Bharatpur royal clan. They are called Sinsini Jats after the village of their ancestor. Although of mixed ancestory, these Jats claim Rajput or Kshatriya status. During the imperial periods, they were little more than peasant cultivators loosely organized in a lineage and clan structure (Drake-Brockman, N.D.: 31).

The empires built on existing clan and kinship structures. In Bharatpur, village headmen were heads of local Jat lineages who formed the main body of cultivators. The bane of the system was its segmentary nature. When the center was weak, provincial governors and local chiefs arose in rebellion to assert their independence.

In the latter part of Aurangzeb's reign (d. 1707), as the Mughal empire began to disintegrate, Jat village headmen around Delhi and Agra began raids against Mughal installations and authority. Their main chief, Churaman, a Sinsini Jat, was eventually defeated by forces under the Jaipur prince, Jai Singh II (see above) in 1721. But Badan Singh, Churaman's brother's son was able to establish control over Agra and Mathura Districts and lay the foundations of the Bharatpur State (Majumdar, 1967: 535).

Badan Singh had twenty-six sons. Suraj Mal, an adopted son, extended the state territories to include some thirteen districts, and his reign (1756-1763) marks the high point of the power of Bharatpur. Other sons were given control over various villages as jagirdars. The Jat lineage in Shivpura is descended from one of these other sons. They are very aware of their connection to the Bharatpur ruling family and several older members of their community have served in the Bharatpur court administration.*

Their control over the village as coparceners of the clan territory had a major influence on land and social relations as found today. As jagirdars collectively responsible through their headman to the state, they controlled all the land in the village. Their position as controllers -- and thereby also of village affairs -- continued after land reform as they were able to retain much of their land by being the "actual" cultivators. One senior member is reputed to have over five hundred acres over several villages. Previously most of his land was leased to tenants, but by using dispersed titles and the fact that separate village land registers are not consolidated -- he evaded ceilings and ejected his tenants.

Land not personally cultivated was given out, as today, to tenants. Tenants came from Brahmin, Ahir, Yadav and Garghariya castes (the latter three are traditional cultivators) and to a few Chamars (leatherworkers) who also form the main pool of labor.

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*One elderly gentlemen had been in New York while in service to the maharaja.

Before partition in 1947, a few Muslim households held tenancies too.* The richer households migrated to Pakistan after the violence of partition died down. The few remaining ones are low caste, impoverished Telis (oilpressers) and one family of Manihars (bangle makers) who have a thriving business in the bangle trade.

Land reform ended the role of Jats as traditional overlords though not their dominant position. Their Brahmin, Ahir, Yadav and Garghariya tenants received title to some land. The Muslim groups completely lost out as did most of the Chamars. One Chamar household had held a jagir under the old regime. They performed services for the state a guard of a sub-treasury and were given control over about sixty acres in another village. They lost it all during jagirdari abolition and now own one acre in Shivpura and lease more from Jats. Their case is but one of several interesting anomolies encountered in the field.** The few households able to lease land today are Chamar, Teli and a few Brahmin ones. As in Hanumangarh, leases are oral, and these people are tenants-at-will.

In contrast to Hanumangarh, however, land consolidation was never implemented along with land reform. Cultivators in Shivpura who own only a few acres may have up to ten separate plots located some distance

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*Bharatpur State was the scene of incredible violence between Muslim and Hindus during partition. The Shivpura Jats, much to their credit, formed a committee and sealed off the village from the conflagration around them not allowing anyone to come in or leave. Nothing happened in the village, no lives were lost, but the Muslims tenants gave up any claim they might have made to Jat land.

**Another anomoly encountered in Bharatpur was a group of Brahmins, Hivasis, who practice polyandry. A few families live in a village adjacent to Shivpura, and are the talk of the area due to their "scandalous" practices.

from each other. This has a decided effect on investments people make, particularly in irrigation. There is less incentive to sink a well that can irrigate only a portion of one's land. Permission for water channels to cross neighbors' land is difficult to obtain as channels take up space wanted for cultivation. Such arrangements as tried in the past resulted in bitter quarrels and most cultivators feel they are more bother than they are worth. Joint ventures on wells or sharing of water are similarly surrounded with constant wrangling. Those with wells -- on larger plots -- rarely sell or share water with their neighbors. Rights and control over land and water resources are jealously guarded against any hint of encroachment. Disputes between villagers usually stem from disagreements over boundaries and right of way privileges with neighboring landowners.

Also in contrast to Hanumangarh, Shivpura has few Baniyas. The landed caste groups, primarily Jats and Ahirs provide most credit. Landlord and creditor are often combined in the same individuals. Tenants often borrow for agricultural inputs and living expenses from those whose land they lease. This is a wonderful arrangement for the landlord who collects rent, one-half to three-fourths of the crop, and debt repayment made in undervalued grain. Tenants effectively give landlords up to 80 percent of their crop between the two payments. Looked at in a different way, this arrangement provides landowners with very cheap labor for growing crops, cheaper than hired labor. High productivity is ensured as tenants try to grow as much as possible simply to get enough on which to live.

The village in its present form did not exist until around the beginning of the twentieth century. The 1891 census shows the village

to be deserted (Drake-Brockman: N.D.). Whether the village was uninhabited from the time of the original jagir endowment in the eighteenth century to the twentieth century is unclear as several old buildings point to occupation during that time. The local Thakurs may have lived elsewhere although they still controlled Shivpura's lands. They speak of a split with the Jats residing in Sinsini (whom they regard as cold, ungenerous sorts) after which they moved to their present location. The present residential area abuts that of an adjoining village with only a village lane in between. There is some evidence the two villages were previously one and due to a schism, Shivpura broke off. Even today, the two groups of villagers do not mix readily and Shivpura Jats refer to their neighbor as a distant village. The division carries down to the honorific titles used by the Jats in each village. Shivpura Jats call themselves Thakurs and the others refer to themselves as Faujdars. Possibly, the Shivpura Jats first lived in the adjoining village, underwent a factional dispute, moved in with their caste fellows in Sinsini, obtained a division of the lands and gradually moved onto their present site. This is at best conjectural as this was never volunteered.*

Comparison: Hanumangarh and Shivpura

The history of the two villages has produced differences as well as similarities. Shivpura has been a jagirdari village under the sole control of the Jats who have maintained their dominant position (see Tables 3.4 and 3.6). Hanumangarh, a khalsa village, was not controlled by any one group. Excluding Rajputs, seven of the caste groups

*And stupidly, never asked.

controlling land under the old regime hold most of the land today (see Tables 3.3 and 3.5). How groups became dominant is essentially the same. The skewed distribution of land which existed under princely rule has continued into the present. Land reform did not substantially alter the pattern of land control at the local level. The only difference between the two villages is the singular domination of one caste group in Shivpura and the somewhat more dispersed inequality in Hanumangarh.

As is true in most agrarian societies, land is a base of power and wealth. Landowners are at the top of patron-client networks, the ties of economic interdependence between themselves and others. Those who control land also control or vie for control over village politics, the direction of social life and distribution of patronage and public services. This will be taken up, in part, in the next chapter.

TABLE 3.1. Population and Work Force: Hanumangarh and Shivpura

Category	Hanumangarh	Shivpura
Number of Households	1006	183
Total Population	5439	1294
Male/Female	2920/2519	706/588
Scheduled Castes	1445	354
Male/Female	765/680	200/154
Scheduled Tribes	750	15
Male/Female	425/325	8/7
Literate and Educated	1151	407
Male/Female	962/189	372/35
Total Work Force	1591	398
Male/Female	1400/191	370/28
Cultivators (Owner and Tenant)	778	287
Male/Female	703/75	283/4
Agricultural Laborers	178	48
Male/Female	136/42	24/24
Livestock, Forestry, Fishing and Hunting	22	--
Male/Female	22/--	--/--
Mining and Quarrying	5	1
Male/Female	5/--	1/--
Household Industry	127	11
Male/Female	87/40	11/--
Non-Household Industry	8	--
Male/Female	8/--	--/--
Construction	51	--
Male/Female	51/--	--/--
Trade and Commerce	41	8
Male/Female	41/--	8/--
Transport, Communication and Storage	24	2
Male/Female	24/--	2/--
Other	357	41
Male/Female	323/34	41/--
Non-Workers	3848	896
Male/Female	1520/2328	336/560

Source: Census of India, District Census Handbooks, Jaipur and and Bharatpur, 1971.

TABLE 3.2. Land Use Pattern: Hanumangarh and Shivpura

Land Classification	Hanumangarh (Acres)	Shivpura (Acres)
Total Area	8958	1029
Cultivated Area	3431	843
Irrigated (Net)*	1008	186
Irrigated (Gross)**	1237	186
Unirrigated (Net)	2423	657
Unirrigated (Gross)	2633	676
Forests	2812	--
Groves and Orchards	2	--
Fallow (up to 5 years)	375	125
Culturable Waste (Old fallow and grazing lands)	901	11
Not Available for Cultivation (Mountains, roads, residential)	1437	50

Source: Census of India, District Census Handbooks, Jaipur and Bharatpur, 1971.

* Net refers to actual acres.

**Gross refers to cropped area which counts double cropped acres twice.

TABLE 3.3. Land Ownership by Caste - Full Sample: Hanumangarh

Caste	Number of Households	Irrigated	Unirrigated
Brahmins:			
Parikh*	1	36.00	--
Gaur*	3	15.19	66.22
Haryana*	3	22.37	18.22
Gujjar-Gaur	1	--	8.13
Rajput*	2	1.56	4.69
Baniya*	1	18.75	48.75
Mali*	7	22.31	18.31
Mina*	10	35.30	18.11
Gujjar*	11	28.72	53.20
Sonar	1	1.25	--
Khatti	1	.69	--
Kumhar	2	--	3.81
Nai	1	--	--
Khatik	1	--	1.83
Balai	1	--	2.03
Regar	21	11.03 (2.90)**	49.93 (24.21)**
Totals	67	193.17 (185.04)**	293.23 (267.51)**

Note: Not all households were interviewed.

* Recognized tenants under old regime.
**Land in actual possession.

TABLE 3.4. Land Ownership by Caste - Full Sample: Shivpura

Caste	Number of Households	Irrigated	Unirrigated
Brahmin	1	5.20	--
Jat*	8	37.85	101.98
Kohli	1	--	1.20
Mena	1	--	1.32
Chamar	4	--	8.26
Totals	15	43.05	112.76

Note: Not all households were interviewed.

* Former jagirdars.

TABLE 3.5. Distribution of Castes by Size Category - Full Sample: Hanumangarh

Caste	Small			Medium		Large	Number of Households
	O	T	O/T	O	O/T	O	
Brahmins:							
Parikh*	-	-	-	-	-	1	1
Gaur*	-	-	-	1	-	2	3
Haryana*	-	-	-	2	-	1	3
Gujjar-Gaur	-	-	-	1	-	-	1
Rajput*	2	-	-	-	-	-	2
Baniya*	-	-	-	-	-	1	1
Mali*	3	-	-	3	-	1	7
Mina*	6	-	1	2	-	1	10
Gujjar*	2	-	-	6	-	3	11
Sonar	-	-	1	-	-	-	1
Khatti	1	-	-	-	-	-	1
Kumhar	2	-	-	-	-	-	2
Nai	-	1	-	-	-	-	1
Khatik	1	-	-	-	-	-	1
Balai	1	-	-	-	-	-	1
Regar	6	8	4	-	3	-	21
Totals	24	9	6	15	3	10	67

Note: Not all households were interviewed.

Key: For this and all subsequent tables:

Small = five or less acres.
Medium = more than five and up to and including ten acres.
Large = more than ten acres.

O = Owner
T = Tenant
O/T = Owner-cum-Tenant

* Recognized tenants under old regime.

TABLE 3.6. Distribution of Castes by Size Category - Full Sample: Shivpura

Caste	Small	Medium	Large		Number of Households
	O	O	O	O/T	
Brahmin	-	1	-	-	1
Jat*	2	-	6	-	8
Kohli	1	-	-	-	1
Mena	1	-	-	-	1
Chamar	2	1	-	1	4

Note: Not all households were interviewed

* Former jagirdars.

CHAPTER IV

THE SOCIAL AND CULTURAL LIFE

As stated in Chapter I, the relationship between economic activity and other domains of social life helps us to understand more fully what is going on in an economy, and furthermore, why certain features are there. Articles produced, distributed, exchanged and consumed are part of social relations. They underwrite and support individual and household subsistence and also support non-economic relationships and structures in society. An individual or household is not solely interested in obtaining the basic necessities of life. As social beings, people are part of a network of social interdependencies. There are certain things people are committed to do or to obtain. These activities require at least some minimal allocation of resources for their fulfillment.

The effect of this on economic behavior is twofold. For instance, a cultivating household (solely dependent on agriculture) tries to produce enough to feed itself, exchange for other required things not produced in the household and fulfill social obligations. Social obligations may include things such as feasts and ceremonies, gifts and payments to clientele groups (kamins), gifts to kin, taxes, support of a temple or gratuities to mendicants. These latter sort of things are subject to social definition; what is appropriate for the society and one's position in it. Similarly, items of household consumption are

subject to social definition -- things such as housing, food, clothing and other consumer goods.

Looked at in another way, such obligations compete for resources which otherwise could be allocated to productive activity. The problem is one of balance between fulfilling social obligations and supporting a particular life style against the investment of resources into income earning activity from which they can be supported. When such activities are balanced, the household has attained self-sufficiency or its own level of optimal performance, even though a potential exists for higher production. Thus, social relations and their surrounding definitions provide an additional set of limits to economic behavior.

In both villages, the specification of the interaction between society and economy is complicated by differing and at times contradictory categories, principles and dimensions on which relations are defined. It is difficult to come up with a consistent set of items which explain the whole set of interactions and behavior observed.

Part of the problem is change. In its most general and broad outlines, the interdependencies of the old order are dissolving. These can be characterized as bound, hereditary ties, between patrons and clients centering on the use of land and the distribution of goods and services. These ties vertically integrate the community along economic and ritual dimensions and operate within a subsistence village economy and polity. These are gradually giving way to contractual arrangements conducted and evaluated through a cash medium of exchange.* There is a

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*I am indebted to Kenneth David for the basic idea here. (See David, 1976: passim.)

shift toward the formation of horizontal groups, or classes based on shared economic interests, which stand opposed to one another.

These changes are due to outside penetration. Government is taking a direct interest in the agrarian economy and agriculture is being commercialized. Monetized markets have penetrated the local economy, bringing in industrial goods. Land relations have been altered through land reform which has introduced private property restricted by tenancy legislation. The post-independence political framework based on democratic elections has changed the nature of local authority, the role leaders play in the village. All these have produced new sets of social, economic and political interdependencies within the village and with higher district and state levels.

Many of the structural changes are masked by the use of old forms and idiom. In some instances, the old ties are operative and in others, they are not. Relations are many stranded and change has not affected each equally. There are multiple and at times, contradictory references and contexts that define relations.

Dominant landed and wealthy groups continue to dispense patronage to their clients. But the types of patronage, the channels through which it flows and the name of the game have changed. Local political brokers control goods and services coming in through development programs. Agricultural and housing loans, improved inputs and extension services, scholarships for students and construction contracts have been added to the local patronage network. There is less emphasis on the distribution of locally generated goods and services. New items of patronage can only be used by certain groups, e.g., agricultural loans can only be used by cultivators. Other segments such as Harijans are

linked into the network through housing loans, land allotments, scholarships, and building contracts channeled through their own leaders. The trade-offs are patronage for political support where numbers count. This links the local political brokers into district and state political networks. The old patron-client system which operated within the local arena with little outside linkages does not easily lend itself to this interaction.

Due to mechanization, landowners are less dependent upon artisans, tenants and labor. But mechanization has differentially affected the livelihood of the various artisan groups. There is also a tendency toward the monetization of village services. Traditional crafts and services are partially done on a piece work basis, cash for specific work done. Yet, many cultivators continue the traditional grain payments to those bound to them under the jajmani system, despite the lessening dependence on their services.

The bound hereditary ties between landowners, tenants and labor are most affected. Tractorization is displacing tenants and laborers from the agricultural process. These ties are also loosened by tenancy legislation which results in the yearly rotation of tenants. Relations centered on land have become purely contractual with no further rights or obligations other than those in the seasonal or daily agreement. Though tenants and laborers are economically more dependent on landowners, their employment opportunities in agriculture are shrinking. Under the old system, they at least could depend on their patrons to look after them. Even this is now gone.

In the jajmani system, ritual ties appear to be stronger than their economic counterparts although there is a tendency to keep up the

seasonal grain payments to only those groups who perform an economic function. There is a tendency toward paying dependents only on those ceremonial occasions when their ritual services are required.

Caste distinctions are maintained and demonstrated by ritual exchanges and public displays on ceremonial occasions, although some people are caught between images of "modernity" with its egalitarian ethic and pressures to uphold the prestige of their caste upon which much of their status and identity depends.

Status also depends on wealth and class as shown by life styles and consumptions standards. A rich person who lives poorly and pinches every penny is a kanjus (miser), who does not win anyone's respect. A large masonry house, clothes, food and durable consumer items such as radios and wristwatches are things good in and of themselves, but also point to status. Status has its owm imperatives.

Economic well-being also enters into expectations of conspicuous displays on ceremonial occasions. The ability to give -- doweries, gifts and feasts or the sponsoring of festivals -- to affines, dependent groups and the village as a whole -- demonstrates the status of the giver. These obligations are often at odds with people's images of themselves as modern, progressive and making their own way in the world. The large cultivators particularly voice their ambivalence, perhaps because they are more aware of other behavior models and because I was an outsider. They often speak of tbe old obligations as wasteful and onerous burdens which should be done away with. But when the time comes to perform marriages, birth ceremonies and death feasts, they spare no expense.

Power and Authority Structure

As we have already noted, social organization in both villages is influenced by the skewed distribution of land and wealth. Large cultivating households hold the majority of village assets (Tables 4.1 and 4.2). They hold the dominant positions and control the distribution of resources, goods and services. To a great degree caste and class overlap (see Tables 4.3 and 4.4).

Though both villages have several caste groups (see Table 4.5), a major difference is the singular control of the Jats in Shivpura while control is dispersed among several in Hanumangarh. In Shivpura, there is no question as to who is in control. Inter-caste relations appear open and relaxed. There is little formalized and stereotyped behavior between even those castes generally separated by ritual rank. Chamars, Ahirs, Yadavs, Jats and Brahmins intermingle in daily social life, sit and chat and joke among themselves. As everyone knows exactly where he stands, recourse does not have to be made to overt demonstrations of relative rank.

Hanumangarh is just the opposite. The landed castes compete over the spoils of village politics. Other castes are seen as a threat to one's position. To fraternize with ritual inferiors challenges one's claim to status. Social distance is maintained and reinforced by actions and speech. No self respecting high caste person will enter the neighborhood of lower castes unless it is on the most urgent of business. Relationships are formal and emphasize relative superiority or inferiority.

The overall social structure in Shivpura can be conceived as a single pyramid with Jat landowners on top. All other groups (except

perhaps Baniyas and the few shopkeepers) depend on them. The village is vertically integrated under a single power structure. The elected headman, a Jat, is a master politician whose position rests on the distribution of loans, agricultural inputs and other services coming into the village through the cooperative and the block development offices. By controlling these, he makes other cultivators dependent on him in return for political support. Other types of patronage such as building contracts for public buildings, go to the Chamars who have otherwise been almost entirely displaced as agricultural tenants. These contracts are channeled by the sarpanch through the Chamar headman who thus owes him support. These ties are strengthened by the sarpancha's marriage to a local Chamar woman,* who is one of three wives; the other two are Jats. He also initiates local action for roads, schools, electricity and bargaining for matching government funds for development projects.

Hanumangarh can be conceived as having several power pyramids. These are controlled by the Gujjars, Minas, Baniyas and Brahmins. No dominant power exists as these groups compete and are themselves rent by factional disputes. There is much suspicion of anyone initiating public undertakings or aspiring to office. As a result, elected positions are hotly contested. During the 1973 cooperative elections, there were several Gujjar and Mina candidates as well as a Baniya for the position of chairman. At the last minute, the Gujjars and Minas agreed on one candidate to prevent the Baniya from winning.** As a result of

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*She is not a concubine, but a regularly married woman, a dharmpatni. She can serve, but not cook for him, however. He points out that their "masala" (spices) and provisions are kept separately.

**Large landowners try to keep control over the cooperative. During the year of study (1972-73), there were no loans given out due to

factionalism, the elected sarpanch has been suspended and his appointed replacement has no following and is ineffectual.

As in Shivpura, the distribution of public goods and services has entered the local patronage system. People want amenities such as roads, school additions, water systems and street lights. But local leadership has difficulty deciding on a course of action, and has even more problems following through. These things are used by politicians running for higher office to get support around election time. As there is no decisive power bloc, outside politicians play competing factions and demands against each other. The old caste patels still have a measure of influence and are their local contacts.

The Regar community, in contrast to the Shivpura Chamars, have some independence of action. Although most do not receive agricultural services, they are eligible for housing loans, scholarships and land allotments.* They own some of the newest and best houses in the village even though they are among the poorest people in the village.

The Social Relations of Production

Two sets of relations are the most important for present discussion: those centered on land and agriculture, and those centered on the production and distribution of goods and services within the village.

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poor recovery from previous years. Rumor had it that large cultivators had taken loans at the comparatively low rate of interest and had reloaned it to others. They had trouble collecting it from the third parties.

*The types of patronage they receive are available only to scheduled castes. They are caught in a situation where they can only vote for Congress, or not at all, as no other party has any interest in them. Their payoffs are of the kind which do not conflict with other interests.

As agriculture forms the base of the village economy, changes in the relations of production and access to land have affected the most people.

The effects of this change are several. The process of agricultural change in India is one where traditional, labor-intensive technology based on animal tractive power will be replaced by large-scale mechanical, capital-intensive inputs.

Traditional technology limits the size of operational holdings. It is difficult to bring more than fifteen acres under cultivation with a team of bullocks, wooden implements and a work force comprised of family labor. For instance, a team of bullocks and one man can plow an acre in a day. Cultivators plow their land two or three times for the kharif crop and upward to eleven or twelve times for rabi. Irrigation with the bullock drawn rope and leather bucket method requires three to four men with two tandem teams of bullocks four days to irrigate one acre. The persian wheel (used in Shivpura) requires four men and a team of bullocks two and one-half days to irrigate an acre. Similarly, the amount of hand labor and time needed for the various other operations limits the amount of land that can be effectively cultivated by one management unit (see Table 4.6).

Given such constraints, larger landowners lease out land beyond the amount they can personally manage (if they self-cultivate at all). Non-cultivating landlords -- who usually have other sources of income such as trade or moneylending -- lease out all their land. The amount given to a tenant depends on the number of people asking for it, their reputations as cultivators, tenants' family size, the equipment or bullocks tenants own and the terms they are willing to accept. It is easier to

lease to tenants who assume the managerial role than it is for the owner to oversee large work gangs and maintain bullocks and a full range of agricultural implements.

This type of organization produces a mutual dependency between landowners, tenants and laborers needed for weeding and harvesting. Before land reform and tenancy legislation, these relationships were bound and hereditary. People speak of the old ties with landlords as sambandhiya, a term which means "relations" but connotes being bound or tied together. These were perduring relationships that involved more than just land. People could rely on their landlord for help in settling disputes, or in illness, for financial aid required for dowries or death feasts, and for support in lean times caused by poor harvests or famine. Landlords relied on tenants and laborers to cultivate land, and for income from rent. They also enlisted client support in factional disputes and utilized their services for various household duties. It was a mark of status to have retainers on call.

With the passage of tenancy legislation, landlords are afraid of losing their land. A tenant who cultivates a piece of land three years in a row can claim permanent rights even if there is no formally recognized agreement. Their fear has some basis though landlords have the power and resources to fight a court case. One tenant in Shivpura was able to successfully press such a claim. Tenants are viewed as a threat to property, although they are still needed (in Hanumangarh more than Shivpura). The rotation of tenants protects landlords, but also breaks the old patron-client ties. The relationship becomes purely contractual. A few cases were found in Hanumangarh where these old ties

were still operative, but these were exceptional. In those cases, tenants worked the same landlord's land, but a different plot each season.

Tractorization

Technological change also affects these relationships. Along with seeds, fertilizers, and the package of practices, mechanical implements have been introduced. Several large cultivators have purchased thirty-five to fifty-five horsepower tractors which permit them to bring more of their land under personal cultivation. So far tractors are used primarily for plowing and levelling. Weeding, harvesting and threshing still require much hand labor. However, chaff cutters which attach to the back of tractors are used for cutting stalks and also for threshing. Threshing is sometimes also done by driving a tractor in circles over the piles of unhusked grain. Both methods take a fraction of the time and labor required by bullocks.

In Hanumangarh there are only three tractors. These are owned by two large landowners who use them on their own holdings and rent them to others as they cannot make full use of their equipment to make their investment worthwhile. These other cultivators increasingly depend on them. This is particularly true of smaller cultivators who have difficulty maintaining bullocks and are phasing them out. Households with no bullocks try to rent a tractor for most operations. Most bullock owning households rely less on their animals and hire tractors also (see Table 4.7). Bullocks still have their place, however, as none of the tractors in Hanumangarh have seed drills. Bullocks are needed for rabi wheat and barley crops which require line sowing.

The five tractors in Shivpura are owned by different individuals. There are three more in the neighboring village. These owners also rent out their machines (see Table 4.8). Though tractors are replacing bullocks for field operations, there is no particular tendency toward their displacement. They are still useful for transportation.* Carts are the most practical means for transporting things within the village and to the nearby market towns as Shivpura is not on a major road with truck transport. Cultivators still take pride in their teams and feed them grain as well as chaff -- something unheard of in Hanumangarh where bullocks are small, thin and weak.

Irrigation

With the availability of pump sets, irrigation practices are changing as well. They require less time and labor and more land can be brought under irrigation.

About 80 percent of the wells in Hanumangarh have electric pump sets (see Table 4.9). The consolidation of holdings have contributed to investment in pumps and irrigation generally. With one's land in one place, the shift from the traditional rope and bucket method can bring more of it under irrigation. The larger cultivators have all purchased pump sets. Smaller ones are not far behind, installing them on their own wells or entering joint ventures on wells in which they own a share.**

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*Carts are not used in Hanumangarh because of the sandy soil and gullies. Camels are the chief means of transportation.

**Some joint ventures are with kinsmen. Shares in wells are usually the result of inheritance patterns.

Fewer wells in Shivpura have pumpsets. As the village has yet to be electrified, pumpsets are powered by diesel engines. These are more cumbersome and require reserves of oil which is often in short supply. As mentioned previously, Shivpura has not undergone land consolidation and thus the amount of land under each well is not much. The rope and bucket and persian wheel remain in over 60 percent of wells (see Table 4.10). The traditional methods are cheaper to operate and require less maintenance and cash expense. Furthermore, Shivpura cultivators are not as dependent on irrigation as are those in Hanumangarh (see Chapter II). Only those cultivators with enough land in one place invest in pumps. And as in Hanumangarh, they are the larger owners.

Effects of Mechanization

The effects of mechanization are mixed. Without a doubt machines are labor saving and relieve much of the drudgery of agricultural work. They also allow for timely operations. Kharif plowing and sowing must be done in the first two weeks of the monsoon season. There is also a limited time after kharif in which the rabi crop must be planted. Irrigation must also be done on time. But these things have an impact of social relations and how people make their livelihood.

Tractors permit landowners to bring more land under personal cultivation but also permit them to dispense with tenants. This is somewhat counterbalanced by increased irrigation (more so in Hanumangarh) as double cropping creates more labor demand for weeding and harvest. But what former tenants have lost has not been recouped through additional wage income. Weeding and harvesting are seasonal jobs. Laborers can

rely on only 120 days of agricutural work a year. Furthermore, many cultivators pool their own labor to avoid cash outlays for hired help.

Despite my concern with the effect of mechanization, I avoided asking respondents leading questions about these things. I never linked mechanization with problems of tenancies or employment. The Shivpura Chamars, however, clearly make the connection. "We have not been able to get land and demand for our labor has declined ever since the tractors have come." This is one of the first things they said as I was introducing myself and stating my general interest in agriculture during the first few days in the village. Their reading of the situation is borne out by the general lack of tenants in Shivpura's tables. There is only one tenant and he is also a small owner.

Shivpura is more mechanized than Hanumangarh. It has five tractors for its one thousand cultivated acres, or two hundred per tractor. Tenants are not in demand as tractors can service most of it. In Hanumangarh there are only three tractors to service some 3,400 acres, or over one thousand acres per tractor. As a result, much land is still given out on lease. Although people in the landless category complain that land is harder to get, they link the shortage to general population growth. And there are more landless people today than ten or twenty years ago.*

Linked to technological change is the rising profitability of agriculture (to be gone into in detail later on). This is one of the compounding factors -- along with population growth -- which has produced almost total demise of the tenant class in Shivpura. This process is

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*In times past landowners had difficulty finding tenants. The bound relationship was especially necessary for the landlord.

more evident in Hanumangarh where displacement has just begun. In many cases landlords who previously did not cultivate now take an active interest in agriculture. Being influential persons, they have access to new seeds, fertilizer and information from extension personnel. They also have the financial capacity to invest. They provide physical inputs and assume the managerial role.

Such owners employ families seasonally and personally direct what is to be grown and the operations to be performed. Lacking the mechanical implements -- not owning tractors nor assured of getting them on hire -- they need manual labor and bullocks. The hired families provide these items even though they may have to hire bullocks (and sometimes tractors) themselves. Families working under these arrangements are defined as laborers and not tenants though the dividing line between the two categories is very thin.

Labor is rewarded on a share basis but the landlord is the manager and decision maker. The arrangement is often beneficial to both parties. The landlord/manager receives more return and although he receives a larger protion of the product, the share received by the labor family is usually larger than what they would net from a regular tenancy and the use of traditional varieties.* But this is a temporary state of affairs.

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*The division of the crop under the landlord-tenant and manager-laborer agreements is conceived as a number of shares. For unirrigated land, the crop is divided into two equal shares, one to the land (the landlord's) and one to the tenant for his labor and other inputs. For irrigated land there are three equal shares: one each to the land and well (both the landlord's) and one to the tenant. Under the manager-laborer arrangement, the number of shares increases. On unirrigated land, there are three equal shares, one each to the land and the physical inputs (both the landlord's) and one to the laborer. There are four

Landowners using this arrangement make it clear that as soon as they have access to labor saving devices, they will dispense with seasonal laborers. They may need laborers during the peak harvest time, but will employ them only then for daily wages. The one large cultivator in Hanumangarh owning two tractors articulated this very clearly. He currently gives a generous one-third of the harvest during both seasons to the three families he employs each season. He provides the seed, fertilizer, tractor plowing and water. The families provide bullocks and their own labor. When asked what he will do as he gets the full range of implements for his tractors, he said he will cut down the laborers' share to one-sixth, and eventually dispense with them altogether. This he justifies on the grounds that laborers are inefficient and he has to make a return on money invested. Although he makes a cash return over recurring expenses, he still has a negative cash flow because of tractor payments. Labor is currently necessary, but expensive.

The more a cultivator enters into the cash economy, the more he must take the monetized market into account. He must also evaluate the social relations of production in the same manner. This is a further reason for breaking ties with dependent groups.

The position of the landless, mainly Chamars and Telis, in Shivpura is precarious. They are no longer needed as tenants and local wage labor does not provide them much income. There is little construction work and there are few local resources on which to base industry. Some Chamars make shoes they sell locally and at least one person, their

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shares for irrigated land: one each to the land, the well and physical inputs (all the landlord's) and one to the laborer.

patel, has taken up carpentry. Their main local source of income remains agricultural labor.

Some of their men seek employment in Bharatpur, construction work in Delhi (ninety miles away) and agricultural work during harvest as far away as Chandigarh in the Punjab (230 miles distant). These people usually make enough to feed and clothe themselves and have a few meager savings to see their families through slack periods. Opportunities for steady employment outside the village are very limited as unemployment in urban areas is high for unskilled and semi-skilled labor. Harvest work in other regions is highly seasonal and even that is being mechanized. Harvester-combines have been introduced in areas such as the Punjab. The migrants return to Shivpura when no work is to be had elsewhere. Living expenses are lower in the village. They can call on support from relatives and the few people in their community who have land. Occasional local jobs provide some additional income. It is a hand to mouth existence and one gets the impression they are trapped.*

In Hanumangarh, people in the landless class have more opportunities. As discussed above, land is available on lease and there is more demand for their labor. Few people migrate to find employment. Two Regar men worked for several years in the textile mills of Ahmedabad, Gujerat (360 miles to the south) but returned home as they felt there were better opportunities locally.

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*Their sense of helplessness was accentuated by a fire in their neighborhood a few days before our arrival. Many were left with only the clothes on their backs and the few possessions they could salvage from the ashes. They did receive government assistance for rebuilding and rethatching their houses.

The Regars also make shoes and market them in Jaipur. They also make hand fans from palm fronds which are marketed in Jaipur and the local bus stop during the hot season. The water works at the nearby reservoir also provides employment. Almost all pump drivers and mechanics are from their community.

One Regar and one Khatik hold concessions for licensed liquor shops. They sell "country liquor" made by the Rajasthan State Distilleries and do a brisk business within their own communities and with the Minas. A few Regars have become moneylenders for their own community, displacing Baniyas. Others have plans to open small retail food shops and flour mills. Some -- mainly the old leaders -- own good irrigated land and a very few have made a go of it on allotted lands.

Those who are better off see no future in agriculture. Sons are being educated who hope to find civil service jobs or other employment in the cities. Tenancies provide supplementary income which they see as coming to an end.

These persons form a burgeoning elite in their own communities. The majority live under the worst conditions in the village.* Most depend on tenancies, agricultural labor and construction for their income. But their's is not a sense of helplessness and total subordination which pervades their counterpart community in Shivpura. Despite

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*For example, it was observed that children of families who were primarily laborers often only had millet stalks to chew on -- to extract some sugar -- for their evening meal. Other families were observed to be eating carrion beef. Many people ate only one meal a day which was comprised of chapatis (flat bread) and perhaps an onion.

internal factionalism, they fall in behind their leaders and the Regars, particularly, present a united front against the rest of the village.

The Jajmani System and Caste Relations

Another set of relations in both villages are being altered, but not to the same degree as land relations. These relations are those of the jajmani system. Whereas landlord, tenant and labor relations tend to coincide with caste categories, they are free of caste definitions. The jajmani system on the other hand partakes of caste definitions. The services performed and goods produced are done by separate caste groups. The categories are jajman (patron) and kamin (client or doer of work).

Centered on cultivating groups are artisans and service groups who contribute to agricultural production or running of the household. These relations are spoken of as sambandhi -- bound and hereditary. Kamins provide services (material and ritual) in exchange for a set amount of grain.

For instance, in Hanumangarh, payment is based on several criteria. The leatherworkers (until recently), carpenters, blacksmiths and potters receive an amount according to the number of plows or teams of oxen in the jajman's household. Barbers and washermen may receive an amount pegged to the number of adult males and/or females in the household. The amount of grain exchanged is fixed and it is not open to negotiation. Neither is the rate related to actual work done.

Kamins have several jajmans and receive grain from each at harvest. The total amount received is often substantial and provides the major income for such families. Aside from grain, kamins also receive other things such as small cash gifts on festive occasions, old clothing,

leaves to make plates (barbers only), grass and fodder for animals and occasional vegetables from the jajman's garden. Kamins may also lease land from their jajmans; thus the relationships are often many stranded.

Theoretically, the patron-client relationship cannot be broken. A jajman cannot arbitrarily change kamins nor a kamin arbitrarily withhold services. If there is a break in the relationship, a fight over quality of service or shortchanging in payment, no other kamin is supposed to approach the jajman nor agree to provide services if asked. Despite such ruptures which can last several years, the two parties are thought of as being bound together and they must eventually settle their differences.

The patron-client relationship also involves ritual obligations. The proper performance of marriages, birth ceremonies and death feasts require the services of various kamins, services which can only be provided by those families bound to the jajman household.

A marriage in Hanumangarh, for instance, requires the family barber as a messenger between the families and as announcer proclaiming the amount of gifts exchanged. The carpenter provides a toran (a wooden lattice frame) which goes over the bride's doorway and is struck with a sword by the groom as he enters. The carpenter also provides a thamb (a pole) for Ganesh puja (prayer) on which an earthern pot (provided by the potter) is set filled with rice and auspicious articles. The Brahmin priest ties a string bracelet on the wrists of the bride and groom to which are attached an iron ring (from the blacksmith), a lac ring (from the bangle maker) and a small red cloth pouch filled with yellow rice (provided by the priest who performs the ceremony). The bride and groom are also required to worship at the potter's wheel. The

involvement of each of these kamins is necessary. If they do not perform their function it does not bode well for the success of the ceremony.

All rituals serve more than their avowed purpose. Life crises ceremonies, festivals honoring ancestors, birthdays and exploits of deities and seasonal festivals provide opportunities for demonstrating relationships and ties of interdependency.

Feasts accompanying these events provide opportunities to show personal and caste rank. The serving and eating of foods follows proscriptions of purity and pollution. Persons of the same caste sit apart from others but castes of roughly the same rank often interdine.* The acceptance of food denotes equality or inferiority to the preparer and server. Refusal denotes superiority or a standoff where neither caste accepts the other's food. Brahmins are preferred as cooks at such feasts because everyone can accept food from them. They will only serve clean castes, however, and this limits the ability of lower castes (Harijans) to put on feasts to which higher castes attend. They can only be receivers of food which marks them as inferiors.

Changes in the System

Jajmani ties are affected by the same processes that led to the demise of the landlord, tenant and labor bound relationship. There is less dependence on the services and goods of kamins as mechanization increases and industrial goods enter the local bazaars (e.g., plastic buckets). There is a general consensus among artisan and service groups

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*Jajmans who interdine with kamins are hesitant to use that term in referring to them.

that the system will end at least in its economic aspect. They say it will last no longer than the next generation and they are moving into other occupations. Where their services are still needed, they are performed on a part-time basis.

Such structural changes are masked by the exchanges which still occur. Cultivators give grain to maintain the ritual tie and some give out of amicability ("khushi se"). There is a tendency to stop seasonal grain payments and only to give payments on ceremonial occasions. Furthermore, these ritual ties are loosening into generalized relations between castes. In Shivpura there is talk of engaging anyone of the appropriate caste for ritual services rather than particular persons with whom there is a hereditary tie. At the time of field work this was talk only, but is indicative of the gradual breakdown of the system.

Jajmani ties are stronger in Hanumangarh than they are in Shivpura even though economic services are taking on a contractual nature. In one case a jajman fought with his carpenter and there was no communication between them for several years. The patron had his carpentry work done by another family on a cash basis with no objection from anyone. But should the jajman need the ritual servies of a carpenter, he will have to patch up relations with his hereditary kamin as no other carpenter will provide them.

Not all artisan and service castes are linked to the jajmani system. Of the eighteen castes which are in this category in Hanumangarh (see Table 4.5) only nine receive grain at harvest and very few receive from many households (see Table 4.11).

Of those receiving, the Kumhars head the list with Nais a close second. The Kumhar's wares are still needed as glazed pottery has yet

to become a regular item of household use. Earthenware is fragile and needs constant replacement. The Nais are more important for their ritual services. People are beginning to use safety razors or frequent the barber shops which Nais open in the bazaars. Jajmani work still provides a major source of income for both groups.*

The Khattis (carpenters) and Lohars (blacksmiths) are not as important to the economy anymore. The one Khatti household in the sample does receive 90 percent of its grain requirements from jajmans and 10 percent from its own production. No cash was received from jajmans and its entire cash income was made from contract carpentry work.

The other receiving castes are only peripherally linked into the system. The Jogis and Kapris are primarily mendicants and their payments are conceived as alms given out of religious duty. The Balais are leatherworkers and the very few households giving them grain are not exactly sure why they do so. It is just their "custom." It is sufficient that the one household who gives to the Dhobi (washerman) is a Brahmin household. Dhobis traditionally wash the menstrual clothes of their jajman households' women. Brahmins are more particular about distance from pollution which the Dhobi can absorb. The one household

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*The two Kumhar households in the sample receive about 50 percent of their grain requirements from jajmans. The one Nai receives 95 percent of his requirements from this system. Twenty percent of the Kumhars' and 10 percent of the Nais' cash income is received from jajmans. The Kumhars are the least affected by the cash economy. They have little or no cash input in pottery production and have difficulty assigning a cash value to their wares. Only 3 percent of their cash income is from the sale of pots. The remainder comes from salaries. The Nais receive the rest of their cash income from the sale of leaf plates used in ceremonial feasts. This is a traditional occupation along with barbering.

which gives to the Bhangi (sweeper) is exceptional. Most households pay sweepers daily with leftover food and occasionally with old clothing.

Looking at those who give on the basis of size discriminates things somewhat. Landowners make payments to more categories than tenant and owner/tenant households (Table 4.11). Landowners have more equipment to maintain and are more secure in their occupation and running of their households.

Looking at giving households on the basis of caste puts things into sharper relief (Table 4.12). Minas give to the most categories and consistently give to a fuller complement of castes. They are followed by the Malis and Gujjars.

These three castes are closely allied with the Kumhars, Khattis and Lohars. They interdine with their kamins (and are reluctant to refer to them by that term), although they will not interdine among themselves. The maintenance of relations with kamins marks a household as socially important (after Gould, 1964: 18). Relations with Khattis and Lohars distinguish them as important agriculturalists, people of substance who have the wherewithal to give. This is particularly the case with the Minas who are in a rather ambivalent position because of their status. They tend to exceed traditional payments. They give bonuses to kamins by making payment in pukka rather than kuchcha kilos. One Mina, a large cultivator, grandly gave a quintal of grain to his Kumhar, fifty kilograms to his Khatti, forty to his Nai and twenty-five to his Lohar.*

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*Standard payments are made in multiples of kuchcha kilograms or sers. One kuchcha ser equals 1.6 pukka sers. One pukka ser is about equivalent to a metric kilogram and people use kilograms and sers interchangeably. Payments to various kamins range from 2.5 to forty kuchcha sers per season. One of the banes of field work was the multiple standards of weights and measures. I had to continually ask

The Regars tend to function in a similar manner. Their relations with artisans are an attempt to demonstrate clean status. Relatively few give grain to Khattis and Lohars. Most of this work is done on a cash and carry basis. Most households accepting their grain see it as a simple transaction which happens to follow the jajmani idiom. They do not provide ritual services. Similarly, Regars' relations with Kumhars follow the same idiom as it is easier for Kumhars to calculate in grain for pots and their equivalencies. The Regars, however, do have their own Nais who provide both barbering and ritual services.

Cultivators of the artisan and service castes, Sonar, Khatti, Kumhar and Lohar, make the least payments of all. They are kamins themselves and usually reciprocate services with ad hoc grain payments on occasion. The Balai is in much the same position as the Regars; their payments to artisans, however, are purely contractual with no ritual obligations implied. Rajputs are marginal within the local hierarchy as there are so few that they do not enter local competition. Baniyas and Brahmins also make few payments. Kamins are not as important to them for maintaining status as they are large landowners and control much wealth. They call on kamins for ritual services but give relatively few seasonal payments.

Of the non-receiving castes, the Regars are the most interesting. About six years prior to field work, they unilaterally severed their jajmani ties. This was part of a state-wide movement which had the support of some politicians looking for Harijan support.

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informants which standard they were using when they said "kilo." Land measurements were also complicated.

Their decision was met with resistence by all the cultivating castes. Several confrontations took place in which a few Regar men were badly beaten. This break occurred about the same time that land was allotted to them which compounded the confrontation. They were driven off by other cultivators who use these lands for grazing. Most Regars have never gained control of their allotments. Although they complained at the local police station, they received no support. They claim the police were bribed to look the other way.

Previously they made and repaired leather goods for their jajmans and received grain payments. Their transactions now are all monetized. They feel they were cheated under the old system by jajmans reneging on grain payments and cutting down other benefits. They refuse to do repair work now and only make new articles. Their former patrons must patch their own shoes and irrigation buckets or rely on itinerant cobblers (Mochis) for repairs. Many of their former patrons speak bitterly about this break and try to boycott Regars' goods. Some go to Jaipur for leather articles and approach Regars only when they require labor. As a result, the Regars have lost a source of income but feel they have more than made up for it with other occupations as well as in terms of self-respect.

The Regars' decision to "go it alone" involves more than doing away with patrons and moving into the cash economy. They are also attempting to raise their status, not necessarily to rise above any superior caste, but to at least shed their unclean Harijan position. This is one reason why they have given up doing repair work which is more degrading than working on new things. They are very conscious of public displays. Their fine masonry houses are on the road to the bus stop by which

everyone must walk. Their funeral processions are the most elaborate of anyone's in the village. They also put on a showy display for weddings, although no one will attend them or eat their food. Most have given up eating carrion beef and try to emulate the life of higher castes. Breaking jajmani ties is one attempt to get out from under the domination of their patrons and thus to shed their inferior status. This is helped by alternative sources of income, the continued reliance of landowners on their labor and services as tenants and the political patronage given them.

In Shivpura, as in Hanumangarh, not all kamin castes who receive grain are equally involved in the system (Table 4.13). They have also been generally more affected by processes of change than kamins in Hanumangarh as there is less dependence on their goods and services. Most work is done on a cash basis. Such grain payments as they receive serve to maintain ritual ties and there is a tendency to keep up payments only to those whose ritual services are the most important. The Nais receive from all households. Others receive payments as their special services are required.

The Kumhars receive grain from only 50 percent of cultivators' households. Today many families purchase earthenware from the nearby market towns or use glazed crockery and brass utensils which are more durable. Only water storage jars are needed for cooling drinking water. These are replaced as needed and can be purchased from the town at a fraction of value of grain given Kumhars.*

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*Standard payments are in multiples of pukka sers. The lowest seasonal payment is five and the highest is fifty. As in Hanumangarh, the multiple given a family depends on the service provided and the jajman's household composition.

There is not enough local demand to support either Khattis or Lohars. This is not only because Shivpura is small, but also because of mechanization. One family combines both occupations. They make bullock carts and do quick repairs on agricultural implements which most people buy in town. Most of their work is done for cash.

The Dhobi receives grain from only two households. As in Hanumangarh, one of these households is Brahmin. One Jat also gives grain but more as a grand gesture. He is a large landowner and is very wealthy. He is the only Jat giving to Manihars and Bhangis. Manihars are not dependent on jajmans as they have a thriving bangle business, marketing in the village and nearby towns. The Jat gives fifty kilograms per season to the Manihar and twenty to the Bhangi.

Only the large cultivating households give grain to the full complement of kamin castes. The other owner categories give to fewer castes with the small owners only giving to one. The large owners are all Jats and the small owners are all Chamars. The latter have very little land, under one acre each, and they have problems just providing for themselves let alone maintaining such relations.

Looking at giving households on a caste basis gives a further demonstration of Jat dominance (Table 4.14). The Jats are the biggest givers, even though their position is uncontested. They do not give in competition with other castes but more so to show their superiority. And as in Hanumangarh, there is the tendency to use payments as a demonstration of their wherewithal, exceeding what is traditionally owed.

The Brahmins are in no position to challenge the Jats for economic or political supremacy in the village. They are former tenants and are small and medium sized cultivators. The one Brahmin in the sample is a

small shopkeeper as well. He and Brahmins generally are the butts of Jat jokes despite their ritual superiority. The Brahmin maintains jajmani relations on a regular basis with only those clients whose services he requires.

The Chamar cultivators maintain relations only with the Nai and the Khatti-Lohar. Nais are required for ritual services and their payments to the Khatti-Lohar are strictly business transactions following the old idiom.

In both villages, the magnitude of grain exchanged through the jajmani system is small. About 2 percent of all grain produced by interviewed households in each village is distributed to clients. The significance of the system lies in the maintenance of ritual interdependency and the demonstration of relative social rank. As technological innovations and the cash economy penetrate further into the villages, displacing goods and services provided by clients, the system will collapse as an economic institution. The perdurance of the system, unlike the bound landlord, tenant and laborer relations, is due to its social significance and because clients are no threat to jajman's position and property. It may survive in abbreviated form, without bound hereditary characteristics and consisting of generalized relations between castes (as foreshadowed in Shivpura). It has lost its significance as an institution which integrates social, economic and political as well as cultural life. New relationships, interdependencies and means of evaluation are superceding it. At best it will become an artifact of the past attached only to the ceremonial and ritual life of both villages.

TABLE 4.1. Average Assets Per Household by Size Category: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households)	(16)	(6)	(6)	(7)	(3)	(6)	(44)
Agricultural: (Primarily land, secondarily bullocks and equipment)							
Assets Held:							
Beginning 71-72	6427	294	1367	15322	3197	86312	16989
Assets Sold	--	--	--	--	--	--	--
Value End 71-72	6523	267	1342	15257	3213	87120	17133
Equity Held:							
Beginning 71-72	5864	294	1367	15322	3197	81478	16125
Value End 71-72	5840	267	1342	15257	3197	82749	16272
Agriculturally Related: (Other livestock)							
Assets Held:							
Beginning 71-72	1035	1667	703	1754	833	4171	1604
Assets Sold	--	100	208	--	--	--	42
Value End 71-72	921	1428	449	1773	827	4153	1496
Equity Held:							
Beginning 71-72	1035	1667	703	1754	833	4171	1604
Value End 71-72	921	1428	347	1616	793	4153	1455
Household: (Houses, durable goods, non-agricultural properties)							
Assets Held:							
Beginning 71-72	4320	15973	7146	2837	3206	42409	11177
Assets Sold	--	134	--	--	--	--	18
Value End 71-72	4392	15255	6948	2854	3198	43495	11228
Equity Held:							
Beginning 71-72	4164	14940	6896	2837	3206	40909	10740
Value End 71-72	4392	15255	6948	2854	3198	43495	11228
Liquid Assets*							
Beginning 71-72	--	7500	17	172	12	3837	1576
Value End 71-72	90	7586	189	11	2	4083	1652

* Most of this is invested in moneylending.

TABLE 4.2. Average Assets Per Household by Size Category: Shivpura

Item	Small	Medium	Large		All Sizes
	O	O	O	O/T	
(No. of Households)	(2)	(2)	(5)	(1)	(10)
Agricultural: (Primarily land, secondarily bullocks and equipment)					
Assets Held:					
Beginning 71-72	1595	20530	71250	5550	40605
Assets Sold	--	--	--	--	--
Value End 71-72	1595	20405	70800	5390	40339
Equity Held:					
Beginning 71-72	1595	20530	70564	5550	40262
Value End 71-72	1595	20405	70800	5390	40339
Agriculturally Related: (Other livestock)					
Assets Held:					
Beginning 71-72	150	900	2468	300	1474
Assets Sold	--	--	45	--	23
Value End 71-72	135	810	2185	270	1309
Equity Held:					
Beginning 71-72	150	900	2468	300	1474
Value End 71-72	135	810	2185	270	1309
Household: (Houses, durable goods, non-agricultural properties)					
Assets Held:					
Beginning 71-72	200	3660	21800	4000	12072
Assets Sold	--	--	--	--	--
Value End 71-72	200	4160	23054	4000	12799
Equity Held:					
Beginning 71-72	200	3660	21800	4000	12072
Value End 71-72	200	4160	23054	4000	12799
Liquid Assets					
Beginning 71-72	--	500	3975	--	2088
Value End 71-72	--	195	2871	--	1475

TABLE 4.3. Caste Distribution by Size Category: Hanumangarh

Caste	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
Brahmin	-	-	-	2	-	3	5
Rajput	1	-	-	-	-	-	1
Baniya	-	-	-	-	-	1	1
Mali	2	-	-	3	-	1	6
Mina	4	-	1	1	-	1	7
Gujjar	-	-	-	1	-	-	1
Sonar	-	-	1	-	-	-	1
Khatti	1	-	-	-	-	-	1
Kumhar	2	-	-	-	-	-	2
Nai	-	1	-	-	-	-	1
Balai	1	-	-	-	-	-	1
Regar	5	5	4	-	3	-	17
Totals	16	6	6	7	3	6	44

Note: Compare with Table 3.5, the full sample.

TABLE 4.4. Caste Distribution by Size Category: Shivpura

Caste	Small	Medium	Large		All Sizes
	O	O	O	O/T	
Brahmin	-	1	-	-	1
Jat	-	-	5	-	5
Chamar	2	1	-	1	4
Totals	2	2	5	1	10

Note: Compare with Table 3.6, the full sample.

TABLE 4.5. Castes Represented: Hanumangarh and Shivpura

Hanumangarh		Shivpura	
Brahmins:	(priest, cultivator and landlord)	Brahmin	(priest, cultivator and shopkeeper)
Parikh			
Gaur			
Haryana			
Gujjar-Gaur			
		Baniya	(merchant, moneylender and landlord)
Rajput	(cultivator)	Jat	(cultivator and landlord)
Charan	(cultivator)		
Baniya	(merchant, moneylender and landlord	Ahir	(cultivator and landlord)
Kir	(Punjabi immigrant miller and landlord)	Yadav	(cultivator)
		Garghariya	(cultivator)
Khatri	(Punjabi immigrant merchant and moneylender)	Khatti	(carpenter)
		Kumhar	(potter)
Jogi	(mendicant)	Nai	(barber)
Kapri	(mendicant)	Kohli	(weaver, shopkeeper)
Mali	(cultivator)		
Mina	(cultivator)	Mena	(cultivator)
Gujjar	(cultivator)	Chamar	(leatherworker, laborer)
Sonar	(goldsmith)		
Khatti	(carpenter)	Dhobi	(washerman)
Kumhar	(potter)	Bhangi	(scavenger)
Lohar	(blacksmith)		
Nai	(barber)	Muslims:	
Kalhar	(distiller, merchant)		
Kohli	(weaver, laborer)	Meo	(emmigrant priest)
		Manihar	(banglemaker)
Regar	(leatherworker, laborer)	Teli	(oilpresser)
Balai	(leatherworker, laborer)		
Khatik	(herder, butcher, laborer)		
Dhobi	(washerman)		
Naik	(scavenger, watchman)		
Bhangi	(scavenger)		
Muslims:			
Sheikh	(shopkeeper)		
Manihar	(banglemaker)		
Darji	(tailor)		
Teli	(oilpresser)		

* This is a rough rank order which corresponds generally to local conceptions and interaction. A rigorous analysis was not conducted.

TABLE 4.6. Man Days Required Per Acre for Various Agricultural Operations by Season*

Operation	Hanumangarh		Shivpura	
	Kharif	Rabi	Kharif	Rabi
Clearing	2.5	--	2.5	--
Manuring**	1.5-8.0	--	1.0-5.0	--
Plowing:				
by Bullocks	1	1	1	1
by Tractor	.05	.05	.05	.05
Dragging:				
by Bullocks	.5	.5	.5	.5
by Tractor	.02	.02	.02	.02
Sowing:				
by Bullocks	1	1	1	1
by Tractor	--	--	.1	.1
Weeding***	16	4	10	10
Irrigation:				
by Rope and Bucket	12-16	12-16	10-12	10-12
by Persian Wheel	--	--	10	10
by Mechanical Pump	1	1	1	1
Harvesting	6-12	6-12	6-10	6-10
Threshing: (@ 100 Kgs.)				
by Bullocks	.5-1.0	.5-1.0	.5-1.0	.5-1.0
by Chaff Cutter	.05	.05	.05	.05
by Tractor Tires	.05	.05	.05	.05
Winnowing: (@ 100 Kgs.)	.1-.25	.1-.25	.1-.25	.1-.25
Transport: (@ 100 Kgs.)**				
by Camel	.15-.25	.15-.25	--	--
by Bullock Cart	--	--	.05-.10	.05-.10
by Tractor Trolley	.02-.05	.02-.05	.02-.05	.02-.05

* Based on estimates given by cultivators
** Differences depend upon the distance covered.
***Cultivators in Hanumangarh broadcast seed in kharif which requires more thinning and transplanting.

TABLE 4.7. Households Owning and Hiring Bullocks and Tractors: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
No. of Households	16	6	6	7	3	6	44
Bullock Owners	4	1	1	4	1	4	15
Total Bullocks	10	4	4	18	2	14	52
Tractor Owners	-	-	-	-	-	2	2
Total Tractors	-	-	-	-	-	3	3
Households Hiring Bullocks	12	5	5	2	3	-	27
Households Hiring Tractors:	13	4	5	5	2	3	32
Plowing and Sowing	7	4	4	3	1	3	22
Threshing	5	3	3	2	1	-	14
Levelling	2	-	-	1	-	-	3
Households Hiring Neither	2	-	-	2	-	3	7

TABLE 4.8. Households Owning and Hiring Bullocks and Tractors: Shivpura

Item	Small	Medium	Large		All Sizes
	O	O	O	O/T	
No. of Households	2	2	5	1	10
Bullock Owners	-	2	5	1	8
Total Bullocks	-	3	16	2	21
Tractor Owners	-	-	(5)*	-	(5)
Total Tractors	-	-	(5)	-	(5)
Households Hiring Bullocks	2	-	-	-	2
Households Hiring Tractors:	1	-	4	-	5
Plowing and Sowing	1	-	4	-	5
Threshing	-	-	3	-	3
Levelling	-	-	-	-	-
Households Hiring Neither	-	2	1	1	4

* Numbers in brackets: tractors owned by persons not in sample.

TABLE 4.9. Irrigation Facilities: Hanumangarh

Item	Small			Medium		Large	All Sizes
(No. of Households)	O (16)	T (6)	O/T (6)	O (7)	O/T (3)	O (6)	(44)
Households with Access to Wells	6	2	2	5	2	6	22
Acres Serviced by Wells	15.13	3.75	5.88	26.37	6.7	86.62	144.5
Total Number of Wells*	5.4	2	1.12	3.72	2.5	11.83	26.57
Owned Wells	5.4	--	0.12	3.72	0.5	11.83	21.57
Owned Wells in Service	4.4	--	0.12	3.72	--	10.83	19.07
Rented Wells	--	2	1	--	2	--	5
Rented Wells in Service	--	1	1	--	2	--	4
Wells Operated by:							
Rope and Bucket	2	--	.06	2.5	--	--	4.56
Persion Wheel	--	--	--	--	--	--	--
Pump Set	2.4	1	1.06	1.22	2	10.83	18.51
Pump Sets Idle	--	1	--	--	--	--	1

* Includes shares held in jointly owned wells.

TABLE 4.10. Irrigation Facilities: Shivpura

Item	Small	Medium	Large		All Sizes
(No. of Households)	O (2)	O (2)	O (5)	O/T (1)	(10)
Households with Access to Wells	-	1	5	1	7
Acres Serviced by Wells	-	5.2	30.8	8.8	44.8
Total Number of Wells	-	1	7.5	1	9.5
Owned Wells	-	1	7.5	-	8.5
Owned Wells in Service	-	-	5.5	-	5.5
Rented Wells	-	-	-	1	1
Rented Wells in Service	-	-	-	1	1
Wells Operated by:					
Rope and Bucket	-	-	2.5	-	2.5
Persian Wheel	-	-	2	-	2
Pump Set	-	-	1	1	2
Pump Sets Idle	-	-	1	-	1

TABLE 4.11. Number of Households Making Grain Payments to Kamins: Hanumangarh

Item	Cultivating Households (Givers)						All Sizes
	Small			Medium		Large	
(No. of Households)	O (16)	T (6)	O/T (6)	O (7)	O/T (3)	O (6)	(44)
No. of Households Giving Grain	15	5	5	5	3	6	39
Kamins (Receivers)							
Kumhar	13	5	5	5	3	6	37
Nai	12	4	4	4	3	5	32
Khatti	9	1	1	5	2	3	21
Lohar	5	1	1	4	-	2	13
Jogi	3	-	1	1	-	-	5
Balai	1	-	-	2	-	-	3
Kapri	1	-	-	1	-	-	2
Dhobi	-	-	-	-	-	1	1
Bhangi	-	-	-	-	-	1	1
No. of Castes Receiving	7	4	5	7	3	6	9

TABLE 4.12. Number of Households Making Grain Payments to Kamins: Shivpura

Item	Cultivating Households (Givers) Small	Medium	Large		All Sizes
(No. of Households)	O (2)	O (2)	O (5)	O/T (1)	(10)
No. of Households Giving Grain	1	2	5	1	9
Kamins (Receivers)					
Kumhar	-	1	4	-	5
Nai	1	2	5	1	9
Khatti-Lohar	-	1	3	1	5
Dhobi	-	1	1	-	2
Bhangi	-	-	1	-	1
Manihar	-	-	1	-	1
No. of Castes Receiving	1	4	6	2	6

TABLE 4.13. Number of Households Making Grain Payments by Caste: Hanumangarh

Item	Cultivating Households (Givers)													
	Brahmins	Rajput	Baniya	Mali	Mina	Gujjar	Sonar	Khatti	Kumhar	Nai	Regar	Balai	No. of Castes	Total Households
(No. of Households)	(5)	(1)	(1)	(6)	(7)	(1)	(1)	(1)	(2)	(1)	(17)	(1)	(12)	(44)
No. of Households Giving Grain	4	1	1	5	7	1	1	1	1	1	15	1	39	39
Kamins (Receivers)														
Kumhar	4	1	1	5	7	1	1	1	-	1	14	1	11	37
Nai	3	1	1	4	7	1	1	-	1	-	13	-	9	32
Khatti	2	1	-	5	7	1	-	-	-	-	4	1	7	21
Lohar	-	1	-	4	6	1	-	-	-	-	1	-	5	13
Jogi	-	-	-	2	2	-	-	-	-	-	1	-	3	5
Balai	-	-	-	-	2	1	-	-	-	-	-	-	2	3
Kapri	-	-	-	-	2	-	-	-	-	-	-	-	1	2
Dhobi	1	-	-	-	-	-	-	-	-	-	-	-	1	1
Bhangi	-	-	-	1	-	-	-	-	-	-	-	-	1	1
No. of Castes Receiving	4	4	2	6	7	5	2	1	1	1	5	2	9	9

TABLE 4.14. Number of Households Making Grain Payments by Caste: Shivpura

Item	Cultivating Households (Givers)			No. of Castes	Total Households
	Brahmins	Jat	Chamar		
(No. of Households)	(1)	(5)	(4)	(3)	(10)
No. of Households Giving Grain	1	5	3	9	9
Kamins (Receivers)					
Kumhar	1	4	-	2	5
Nai	1	5	3	3	9
Khatti-Lohar	-	3	2	2	5
Dhobi	1	1	-	2	2
Bhangi	-	1	-	1	1
Maniar	-	1	-	1	1
No. of Castes Receiving	3	6	2	6	6

CHAPTER V

ECONOMIC LIFE: INCOME, ALLOCATION OF RESOURCES AND PRODUCTION

Parameters of Economic Activity

Generally speaking, the parameters of constraints and incentives surrounding agriculture are very loose, and there is little to channel behavior into a more or less uniform pattern. There is a wide range of production behavior from subsistence peasant agriculture to entrepreneurial commercial farming. The two often occur side by side.

This partially is due to differential access and control over land and other resources. Large influential cultivators can more easily afford improvements and take more risks. They have more options than small cultivators simply because they have more with which to work. In Hanumangarh, they account for less than 14 percent of sample households, but own and operate about 48 percent of cultivated land. In Shivpura, large landowners constitute 50 percent of sample households and hold 75 percent of cultivated land. Although they have many more members per household, they have more land, income and expendable resources per capita, consumption and labor unit than any other group (Tables 5.1 and 5.2).

One of the striking features is the relationship between household composition and wealth. There is an increase in household size as wealth increases. It is quite often assumed that joint families are a

security mechanism for the economically disadvantaged. To the contrary, poorer (small cultivating households) tend to be nuclear and the rich ones joint. It has been argued that there is a critical ratio between wealth and household composition below which families will fission and divide the estate (Rheubottom, N.D.; Owens, 1971; Nicholas, 1961; Cohn, 1961). The critical minimum for these two villages cannot be assessed as I do not have longitudinal data. General observation, however, supports the arguments that wealthy groups have joint families to keep property under one management unit. This perpetuates their dominant position.

The uneven distribution of resources, particularly land, does set limits on the production activities of different groups of cultivators. But there is no strong correlation between enhanced opportunity and greater productivity and efficiency in agricultural operations. Given the options which exist with more resources, larger cultivators can also afford to be less efficient and productive than their less advantaged counterparts. Along with other size categories in the two villages, the large cultivators exhibit a wide range in productivity and efficiency which cannot be explained by differential access to and control of resources. They, among all size groups, have the least resource constraints. As such, they perhaps provide the best test for the questions asked here. Differential access to resources is but one set of parameters which can lead to variation in production behavior.

Spread of Innovation

The great differences which occur between cultivators is partially due to the introduction of new agricultural methods and technology.

There is often a lag in the adoption of new technology or use of new institutions, a feature brought out in studies of the diffusion of innovations. Some people are more willing or able to make changes, and others will adopt a new item after its effectiveness has been demonstrated (Rogers, 1962: passim). However, this as an explanation is greatly weakened in the two villages studied as the demonstration effect has had at least seven years to induce change.

All cultivators know about the new technology and have seen it in operation. They know it is more productive and remunerative. However, as a body they are not rushing to adopt it (in Hanumangarh, particularly), nor do those who have adopted it (more so in Shivpura) take full advantage of the opportunity it presents. In Hanumangarh, only 32 percent use high yielding variety seeds whereas in Shivpura, 70 percent use them. Twenty-five percent of the total acres planted in Hanumangarh are planted to hybrids. But only 12 percent are under high yielding varieties in Shivpura despite the fact that all large landowners use them (Table 5.3 and 5.4). Irrigated land is required for most hybrids due to large requirements of fertilizer. Wheat and barley can only be grown with irrigation although hybrid millet (bajra) can be grown on unirrigated land during the monsoon. Irrigation presents little constraint to their adoption as in both villages, relatively little irrigated land is planted to them at present.

Market Imperfections

One might argue that the problem is one of supply, and in fact improved inputs and services are limited. This, however, is a hypothetical constraint. Demand does not exceed supply. In Hanumangarh,

for instance, the cooperative society stocked thirty metric tons of fertilizer and pesticide, but a sizeable portion remained unsold.

Public channels are, however, monopolized by larger cultivators, even though they may not fully utilize them. As more influential persons, they can demand attention which other cultivators cannot get. Small holders often complain about this but can do little to change the situation. On the other hand, they do not take advantage of information and resources available to them. Improved varieties and the full range of other inputs are available from private companies in the cities. These are only too glad to sell to whomever wants them, and also dispense advice regarding proper cultivation. All cultivators know about these dealers. People often go to the city, but few ever make it to their stores except occasionally to buy vegetable seed. Overall, the attitude is one of waiting for these things to come to them rather than actively seeking them out. Most cultivators had never sought advice.

Furthermore, official credit facilities are not highly used. The local bank in Hanumangarh has only twenty-five outstanding loans totalling about Rs. 100,000 (approximately $13,500) after four years in operation. It services an area of about fifteen miles in radius. Although moneylenders charge higher rates of interest, they provide the bulk of credit. Only one respondent in Hanumangarh had borrowed money from this bank -- for a tractor -- and he himself is a moneylender.

Range of Viable Alternatives

Another feature might loosely be termed the art of the possible. Economic behavior is ultimately constrained by factors which make a particular strategy (or strategies) viable or unviable. Cultivators can

make maximum use of their resources, combining them in such a way as to be productive as possible and gain the most return over expenditure. At the same time, there is a floor of viability, or bare subsistence, below which a cultivator cannot perform and still remain in agriculture, assuming that agriculture is the sole means of livelihood. Currently, there is a wide range of viable options in Indian agriculture, and the difference between the two levels is very great for most cultivators. This, of course, differs from group to group according to the resources available.

The point is, the only absolute obligation a cultivator has is to at least break even and provision and maintain the household. For most cultivators, this break-even point is far below the maximum level of productivity and efficiency which could be attained even without making any changes in the technology and practices used. Given an environment conducive to variability, variations will occur in response to the differing orientations cultivators have toward agriculture, the types of needs and obligations they must meet and the differing avenues they have for meeting them.

Profitability

A contributing feature to this wide range of viability is the profitability of agriculture. For present purposes it is sufficient to state that if a cultivator produces for sale on the cash market, employs hired labor, improved seed, fertilizer, pesticide and the proper cultivating techniques, the return over recurring expenses can exceed 100 percent. If expenses for fixed improvements such as irrigation, drainage and land levelling are also included, the return is still

substantial and there is no reason why such investments cannot be recouped in a few seasons of operations. The point is that high profitability not only provides an incentive to produce, it also allows for extremely inefficient and unproductive agriculture. A commercial farmer can still make a decent profit and net return even if production is as little as one-quarter and net return a fraction of what they could be.

Other Sources of Income

The notion of viability is complicated by a number of things. The relevant economic unit is in most cases, not the land holding operated by a particular family, but is rather the household whose members may engage in a number of economic activities. The consequence of this is the ability of households to operate their holdings at a low level of productivity or even below a level that would provide their subsistence. Again, this differs from group to group according to the resources available. In the cases of some tenants and small owners, there is not enough land to provide subsistence no matter what they try. In the case of larger cultivators, there is often more than sufficient land from which to support the household. But it can also be operated below the level that provides minimum support. Other sources of domestic or non-domestic work provide supplementary income, or in some cases, agriculture supplements these other sources of income.

In the two villages studied, cultivating households typically have members engaged in a variety of activities and they do not depend solely on what they produce from the land. This is an important point to keep in mind. Quite often, discussions of agriculture assume that cultivating families are unidimensional in their economic activities, that

they are strictly agriculturalists. To the contrary, they also engage in everything from domestic artisan occupations, cottage industry, animal husbandry, to skilled and unskilled wage labor, petty trading, moneylending, salaried jobs and businesses, and in some cases, even the professions (Tables 5.5 and 5.6).

The large households have comparatively high incomes. It is notable that other households in Hanumangarh have similar average incomes. This supports the satisficing argument as an explanation for their production behavior. The difference is related to the market orientation of a few large cultivators who are more like commercial farmers than subsistence peasants. This is reflected in the percentage of income earned in cash from agriculture. In Shivpura, large cultivators earn less of their agricultural income in cash although paradoxically, they engage in more cash cropping. Mustard is grown on unirrigated land (against the advice of extension personnel) during rabi. Grain grown on irrigated land is their main concern and anything produced over subsistence requirements is welcomed but is thought of as a bonus. Similarly, mustard is considered an extra income. It does not jeopardize irrigated grain production and if it produces well, they receive "mustard notes"; if not, they have their subsistence assured.

In both villages, the percentage of total income derived from agriculture is higher for the medium and large size households. Smaller ones depend more on outside employment. The comparatively larger incomes for small cultivators in Hanumangarh (in contrast to those in Shivpura) is because of the more varied employment opportunities.

The rather substantial percentage in the money lending category for small tenants in Hanumangarh is due to one Regar, whose household

distorts the distribution for the whole category. His case is interesting in that it points to the varied economic activities which cross-cut size categories. He is one of several who form the new Regar elite and he practices agriculture only as a sideline.

By participating in several economic activities, households' viability is not absolutely bounded by agricultural performance. There need not be a commitment to stand on agriculture alone even though there may be the capacity to do so. Productivity and efficiency in agricultural production may suffer as other sources of income are pursued (see Epstein, 1973: 255, and Chapter 9). The return from all activities is usually sufficient to meet household needs.

Cash and Kind Economic Spheres

To further complicate this notion of viability, cultivators are involved in two separate but mutually penetrating spheres of circulation: cash and kind. For most households, production is based on the exploitation of kind resources held by the family in order to directly meet domestic food requirements. With the exception of land taxes (which must be paid in cash but which are nominal), all resources expended in production can be obtained from within the household, including rent which tenants pay as a share of the crop.

There is little orientation toward production for cash sales. Cash is obtained through non-agricultural activities or credit. The vast majority of cultivators make a dichotomy between agriculture as a source of food, primarily obtained through exploitation of their own labor and kind resources, and other activities as sources of cash.

These two spheres of circulation should not be understood as an example of a "dual economy" (after Boeke, 1953: passim). They are not discrete entities as there are many points of articulation between the two. People operate in both and an understanding of one is not complete without the other.

Cultivators need cash for consumption and other expenses. They often earn or borrow money to purchase agricultural inputs as well. However, they rarely depend on agriculture as the source of cash for their purchases or to repay debts. A portion of the crop is often used to repay debts, but this is done in the form of direct grain transfers to creditors and is not a cash sale.

The moneylender stands at one point of articulation between these two spheres. One of the puzzling things encountered in the field was the high debt overhead many cultivators carry. They have a need for cash for recurring household and ceremonial expenses. Many have debts on the moneylenders' books for years which they repay slowly or simply service the interest. But moneylenders rarely push their debtors for repayment and there is never any talk of foreclosure. My initial reaction was that moneylenders must have problems with cash flows. What is in it for them? They cannot keep giving out money if it is not returned.

For example, a cultivator might incur a debt of Rs. 1,000 at 18 percent interest to see himself through a cropping season. He repays only Rs. 750/- at harvest, six months later with no interest paid. This leaves him with a debt of Rs. 250/- with Rs. 90/- outstanding interest. If this is left unpaid it builds into a debt of Rs. 355/- at the end of twelve months when interest is compounded.

One might gather that the moneylender would become rather upset, worried about his liquidity, cash flow and return. But this is not necessarily the case. The moneylender appears to not even recover his capital outlay, yet in actual fact he can both recover it and also receive a profit. The question is how?

Moneylenders give cash, but quite often give credit too for goods at their local store. Goods are bought from wholesale markets in the city and charged against the cultivators account at local retail prices (usually above city retail prices). At the time of giving credit, repayment is specified in terms of grain. But the exchange rate is very low; in Hanumangarh it can range from 10 to 50 percent below the average wholesale price.

Assuming that the cultivator receives Rs. 1,000 of credit from the moneylender's store, the actual cash outlay the moneylender makes is about Rs. 910/- (allowing him a 10 percent markup). On the books, the cultivator has repaid only Rs. 750/-, but he has done so in devalued grain. Assuming the cultivator gives wheat at Rs. 80/- per quintal (the government's procurement price is Rs. 83/- to Rs. 85, 1972-73 prices)* that grain's value is Rs. 1,024 at average wholesale prices. Converting that grain into cash, the moneylender receives a 13 percent profit. By playing the grain market and selling at the highest market price, he can make up to 40 percent profit over his initial outlay. Even had he given the cultivator the full amount of cash, he still receives at least 2 to 27 percent profit.

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*Government of India sets minimum official prices to procure foodgrains to create buffer stocks for times of shortage and to ensure a "fair" return to cultivators. This was the price of wheat for the year of study and it has subsequently been raised.

Under these circumstances, the high rates of interest charged are almost peripheral to the real exchanges. They serve primarily to keep people in debt so devalued grain keeps flowing to the moneylender. What appears on the books is also irrelevant to what the moneylender earns. My initial puzzlement stemmed from what appears on the books, i.e., transactions which appear as units of cash.*

Despite the exploitative relationship, people prefer private over official credit. Banks ask for collateral in the form of land or other assets, timely payments and credit is tied to specific expenses. The moneylender on the other hand, is not particularly interested in how the debtor uses the credit, does not demand timely payment, and is always available on short notice for whatever contingency occurs. It is in peoples' interest to be on good terms with a moneylender. He provides credit for death feasts, marriages, and other ceremonies which the bank will not provide. Paradoxically, the moneylender serves as a cushion to fall back on and despite the high interest rates charged, credit is loose. Debts are kept below a ceiling which can be serviced with existing levels of production.

The Peasant Mode of Production

Peasant cultivators who participate in such transactions do not receive the full market value of their product. But moneylenders'

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*I never actually saw moneylenders' books. This is a construction of what happens from cultivators' responses.

Only one cultivator in Shivpura repaid debts in kind. He received a rate 2 percent above average wholesale prices but as there was a flourishing black market in Bharatpur district after nationalization of the grain trade (1973), he was not receiving full value. People were tight-lipped about the black market and I could not get reliable information for average prices for the year. As in Hanumangarh, all produce was evaluated by me on the official open market price average.

appropriation of surplus value does not affect them as much as might be expected. This is because of the manner in which most cultivators evaluate production activities. A cost-benefit analysis made by an outsider imputing cash market values to domestic labor and kind inputs expended in relation to the value of the product, bears little resemblance to the accounting a peasant cultivator follows, one in which the expenditure of such resources is evaluated against the domestic consumption needs the product fulfills (see Galeski, 1972: 11).

Peasants minimize cash costs and substitute them with their own labor and kind resources which are seen as freely expendable. Following a strategy of self-exploitation, they try to produce enough to meet domestic food requirements at less cash cost than if they were to purchase food on the market. Also, a surplus can be produced for paying creditors at less cash cost than actual cash repayment. If on balance they fulfill household requirements, through the combination of earned cash, credit and exploitation of their own kind resources, and can service any debts incurred, they consider themselves to be performing satisfactorily. This is the most common strategy: minimal expenditure of cash and a greater degree of self-exploitation to obtain at least the minimum necessary to meet obligations and support the household.

Inputs come from self-renewing processes -- family labor, barnyard manure, bullocks born and raised in the household, and seed from the last crop -- or from kind exchanges -- grain for implements and hired labor. There is no clear way of calculating equivalencies between inputs and the product in purely subsistence agriculture. The costs of producing an amount of grain are X amount of seed and manure, Y number of days or months spent on labor, and Z amount of grain to obtain

implements or labor. The value of the product is measured against the household needs it fulfills. The only calculation for a cultivator is to combine inputs in such a way as to ensure enough product for his own use. The product is not divisible into returns to factors of production. The subsistence cultivator deals with quantities of things in relation to other things.

The orientation of cultivators toward the monetized market is minimal. This is reflected in their responses when asked how much more land they want. In Hanumangarh, small cultivators give an amount which would bring their holdings up to a level they consider sufficient to feed their families. A few of the medium cultivators say they have enough to meet household requirements. Only one large cultivator says he wants more land. He wants to earn more and also be able to make full use of his tractor. In Shivpura, everyone wants more land, but the reasons they give are subsistence oriented. No one says he wants land in order to earn more. Large farmers are concerned about fragmentation of their holdings and the amounts sons will inherit. The amounts they want would bring holdings up to what they consider sufficient to support their son's households.

Another reflection of this is in people's response to why they are in agriculture. The overwhelming answer in both villages is that they are their own men, they do not have to work under anyone, and agriculture provides means for raising a family. Only two cultivators in Hanumangarh are in it for money. One is the Baniya large owner and the other, the Sonar small owner-cum-tenant.*

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*He provides an interesting case. He gave up a secure government job as a fourth class servant (errand boy) to become a tenant. He is

The partial monetization of production simply adds another quantity to the calculation, but does provide a basis for establishing equivalencies. This is another point of articulation between cash and kind spheres of circulation. Farmers are aware of their cash costs and actual cash expenditure is measured against the cash value of the product. If the production of an amount of grain costs one hundred rupees plus kind inputs, the cultivator is concerned that the cash value of that grain should at least equal one hundred rupees. If it is given to repay debts, it should at least repay that amount and ideally more. Even though the moneylender appropriates a great deal of surplus value from this arrangement, the cultivator who reckons in this manner feels he comes out ahead.

In the two villages, all kind inputs and products can be given cash values as they enter the monetized market <u>at times</u>. But as long as they are not obtained through the monetized market, cultivators do not have to evaluate them that way. They only have to calculate actual cash expenditure against cash return provided that agriculture is their sole source of income. Other non-agricultural cash income if used for investment permits them alternatively to evaluate cash expenditure against the unrealized cash value of the product. In effect, the aim of peasant production under partially monetized conditions becomes the "purchase" of "cheap" grain. The point is, this type of satisficing strategy is highly viable and the household can be provisioned even though agricultural performances is underproductive and inefficient in terms of

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one of the best cultivators in the village and is one of the few to keep ahead of his debts. He accounts for most of the highs in the distribution tables and skews the figures for others in his category.

the monetized market. Furthermore, as discussed above, most cultivators do not have to depend on agriculture for their sole support.

Commercial Farming

This way of evaluating production is quite different from commercial farming. If a cultivator wants to adopt new technology and produce for the market, he must enter a whole new set of relationships and reorient his calculus of production. Machines and other new inputs are available only through monetary exchange. Once they are adopted, a farmer must make a cash profit, at least over the long run, in order to maintain and replace equipment, acquire further inputs and to support himself. This is the kind of squeeze the large owner with two tractors feels. He is building productive capital and although operating with a negative cash flow, he will make a very good income once his tractor debts are repaid. Fortunately, he has other income to support the household during the interim.

Implications

Participation in two spheres of exchange and reliance on the kind sphere for agricultural production has several implications. A cultivator who follows the peasant mode of production is not in competition with other cultivators. With the exception of land for tenancies, there is little or no competition over factors of production as they primarily originate from self-renewing processes within the household.

Neither is there competition in the disposal of crops, as they are consumed primarily by producers. Kind payments to creditors are not exchanges on a competitive market. Furthermore, produce sold on the cash market gives the cultivator a very high return. India is a food

deficit nation and there is a large demand for grain. There is a guaranteed minimum price under government food procurement programs and the open market prices are much higher. Therefore, there is no reason for producers to undercut each other.

Due to this, and the ability to circumvent the cash sphere of exchange, peasant cultivators avoid anything approaching a cost-price squeeze. Less efficient or productive cultivators do not have to alter their strategies or leave agriculture. Neither are economies of scale operative. Small cultivators coexist with large ones. Subsistence cultivators coexist with commercial farmers.

The problem for the small owner-cultivator and tenant comes when outside employment and land on lease become less available. As larger units mechanize more and more operations, the need for hired labor and tenants decreases. Small cultivators who depend on wage labor must rely more on their own production. If they cannot produce with their limited resources, they must leave agriculture. On a national scale, this displacement (based on 1960-61 data) assumes enormous proportions. If all cultivating households who operate less than five acres leave agriculture, only one-fifth of the land will be affected, but over 70 percent of the households (53 million) will have to find alternative means of support (Michie, 1973: A-74).

Production: Averages and Distribution

As outlined in Chapter I, cultivators on the average operate their holdings at a profit, but paradoxically relatively few actually do so. The few most productive and efficient cultivators mask the majority who operate at a loss. Climatic conditions partially explain their dismal

performance; why 70 percent operate at a loss in Hanumangarh and 50 percent do so in Shivpura. But despite climate, a better explanation lies in the strategies these cultivators follow and the manner in which they calculate profit and loss. As discussed above, they only have to account for actual cash outlays and the return is measured against the household needs it satisfies.

Subtracting the family labor from the costs of production significantly alters the pictures. Return calculated as profits and wages (Epstein, 1962: 47) brings more of them into the profit category. Similarly, if one deducts other subsistence costs (except for those met in kind from the product itself)* more farmers operate at a profit. When one looks solely at return against all cash outlays** for agriculture during the year, the picture is changed even more. Although no more cultivators make a profit, this represents the household's cash value return measured against cash expended. For those who operate at a loss on this dimension, this is a negative cash value flow.***

The only way cost-benefit analysis makes any sense is to look at the various ways in which it can be calculated, ways in which cultivators themselves evaluate their performance. That over one-third of cultivators in Hanumangarh still operate at a loss by the final method of calculation, is due to poor rainfall; most cultivators are dependent

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*Things such as rent, interest, wages and jajmani payments.

**Includes outlays for capital goods, but excludes their depreciation.

***In subsistence peasants' reckoning, they have "purchased" their food and other products dearly.

on monsoon cropping.* All cultivators in Shivpura operate at a profit on the bottom line, but for the two small cultivators whose land is of such poor quality their efforts are hardly worthwhile. They do the best they can.

The opportunity cost of family labor and other kind inputs is included in the calculation of profit. But these are not calculations cultivators make. They do have some evaluation, of course, of the amount of work the family expends in relation to return; in Chayanov's terms, the drudgery of the labor year in relation to the product of the labor year (Chayanov, 1966: 5-6). But an evaluation of labor expended in domestic production in relation to what it would bring on the wage market is another matter. First of all, cultivators overwhelming say they prefer to work for themselves. "I am no one's slave," is the way most of them put it. In Simon's terms there is a measure of "psychic income" involved. Second, they have no way of evaluating return to labor until the crop is harvested, even if they bother to do so. They cannot go back in time to make up any difference they might have otherwise received, and this assumes they would have found wage employment had they looked for it. Similarly, the expenditure of other kind inputs can be evaluated only against the total product. They use these things with the expectation that production will be good, but if there is a shortfall, there is no turning back.

Looking at production in both villages for the entire year, large cultivators hold the largest share of total production and value

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*One overall factor affecting kharif production in Hanumangarh is the reluctance to irrigate even when water is available. Cultivators are afraid that if there are no rains at all, their wells will not recharge for the rabi crop.

received from agriculture.* They also make higher profits and percentage return than do the others (Tables 5.7 and 5.8). The same generally holds true when irrigated and unirrigated land are separated (Tables 5.9, 5.10, 5.11, and 5.12).

The larger cultivators' better performance is a result of their comparative advantage. But despite their advantage, they like other size categories, exhibit a wide range in production performance (Tables 5.13 and 5.14). Looking at the highs and lows for all dimensions, they have about as much spread as the others. Controlling for quality of land, one might expect the distribution to be less for irrigated land on which cultivators would have greater control over environmental uncertainty. Yet there is a wide range in both villages for both types of land (Tables 5.15, 5.16, 5.17, and 5.18).

This is indicative of the latitude cultivators in each category have. Some produce for cash sales and thus make quite a lot of money. Most produce primarily for household consumption and realize much less than they could.

One might argue that resource constraints affect most of the low producers: they do not have the resources to invest and the additional input of family labor they have, yields an insignificant return. This is not the case for either physical resources or labor.

In his section on Indian agricultural policy in Asian Drama, Myrdal concludes that low productivity cannot be explained by such an approach.

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*Value received is calculated for each village on average wholesale prices in Jaipur and Bharatpur for produce retained, given as rent, or given in kind exchange. Produce sold is evaluated on price received and produce given to repay debts is evaluated on the amount of cash repaid.

> In a broad sense, the explanation for the low yields and the failure to capitalize on the potentialities for higher yields must be the prevailing work practices; in other words, the failure to make effective use of traditional and well-known techniques. Without any innovations and even without any investment other than longer and more efficient work, agricultural yields could be raised very substantially. (Myrdal, 1968: 1235)

Similar conclusions have been drawn by other economists working in India. Basing his analysis on the extensive Farm Management Studies, Paglin argues:

> . . . a strong case can be made that some additions to the labor force could be productively employed, and there is little doubt that removal of a sizeable number of agricultural workers would result in a significant decrease in output. The Farm Management Studies computed production functions for specific crops in sample districts; where good fits and statistically significant results were obtained, the marginal product of labor was clearly positive. . . . While additional labor inputs are usually accompanied by other complimentary inputs, there is much room for use of labor without capital. Mellor and Moorti in a field study in Uttar Pradesh found the "differences in yields (per acre) seem to be largely due to differences in the use of the fixed, low opportunity-cost inputs, in particular, family labor." (Paglin, 1965: 825)

Haswell writes similarly:

> On the basic issue of the zero marginal product of labour the evidence . . . indicates a positive marginal product of labor against the more generally accepted view that Indian agriculture suffers from a redundant labour force with a zero marginal value product . . . (Haswell, 1967: 72)

Many cultivators in the two villages have much the same view. All say they can improve production. When asked what they have to do to produce more, their answers reveal the general subsistence orientation. Of all respondents in Hanumangarh, 32 percent mention more labor input and better cultivating techniques such as irrigating, weeding and harvesting on time. Over 90 percent also mention better inputs and capital

improvements. In Shivpura, 40 percent mention more and efficient labor and 70 percent mention better physical inputs.*

When asked why they do not put in more time and effort, many reply that current levels of production are sufficient. They are aware of the latitude they have. At the very least they know they can produce more and this surplus capacity is a security should they have to generate more income. They also say they cannot afford better inputs because they are expensive (involving cash outlays) and credit is in short supply.

However, credit is not a constraint. Few households meet their expenses from resources generated within the households. A large percentage of resources are borrowed (Tables 5.19 and 5.20). As discussed above, the bulk of credit is supplied by moneylenders. Credit is going begging at the banks, and cheaper credit at that.

Allocation of Resources

The allocation of resources is the crux of the issue. For most cultivators, low productivity and efficiency are not due to a lack of resources, but the manner in which they are allocated (Tables 5.21 and 5.22).

Expenditure of resources is, of course, related to their availability. Expenditure under headings of a productive nature is influenced by the amount necessary for consumption. Resources available per household increase as size of household increases. As one might expect,

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*Thirty percent said there was nothing more they could do. Significantly, only one of the small cultivators gave this reply. One was a medium owner, and the other was a large owner who is the most productive and efficient cultivator in the Shivpura sample.

the percentage of expenditures on household consumption (household recurring) increases in inverse proportion to resources available.

If one disregards tenants of all kinds, the proportion of resources to agricultural recurring (production costs) tends to increase with the size of operation. This is explained by larger households having more expendable resources and more land in which to invest them, and their ability to fulfill basic consumption requirements more easily. The high percentage expended by tenants is a consequence of paying rents.

Investment in agricultural capital goods (the heading "Agricultural Investment") remains fairly even across all strata with the exception of the large owners. They can more easily invest and they are the ones paying for pump sets and tractors. Most expenditures under this heading is for replacement of tools and draft animals. The aim is to maintain existing assets rather than add to them. This is evidence for the subsistence peasant orientation of most as opposed to the few following an expansive commercial strategy.

Expenditures on agriculture-related items (milk animals, camels, their fodder, custom tractor hire, etc.) increases with size of operations as well. Tenants generally are the exception. The large cultivators who hire out tractors account for the large percent spent for their category in Hanumangarh. Most expenditures under this heading come from fodder produced by the household; relatively few families purchase fodder or new milk animals. Animals are allowed to graze if fodder requirements are not met within the household, and people rely on natural reproduction for stock replacement. Almost every family has a milk animal and with few exceptions, milk is for household consumption. A few households are engaged in dairy farming, earning a large portion

of their cash income from this. Similarly, a few families earn cash from camel driving. These activities depend on a land base as most fodder is from one's own production which accounts for the relatively small percent expended by tenants.

Household investments (houses, other buildings, jewelry and durable consumer items) are a form of both consumption and savings. Such investments add to fixed assets. They can be used to support a particular life style and demonstrate status. With the exception of the few rental properties in Hanumangarh, expenditure on them is a diversion from productive undertakings.

Debt repayment accounts for a large portion of expenditures. Comparing the amounts repaid against those borrowed (Tables 5.19 and 5.20), one can estimate the extent to which people are able to keep ahead of their debts. Although resources available are not exactly the same as resources spent, they are roughly equivalent.* Large cultivators are able to keep up with their debts more easily than smaller ones. Again this is a function of their control over more resources, their need for less credit and their proportionately smaller allocations for consumption.

The other categories are deeper in debt, but as discussed earlier, this burden is not as heavy as it seems. Most households maintain a debt ceiling below which they can prolong payments and eventually repay their creditors. For this particular year, production was low in Hanumangarh as we have seen. Over the long run, debts can be serviced

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*Debts carried over from previous years are not included although their repayments are accounted for.

without having to make changes in production strategy. Cultivators fully expect to repay their debts in the coming years.

The expenditure under ceremonies is the most interesting. With the exception of household recurring,* the other headings of expenditures relate to activities leading to gain. Yet there is a high proportion of spending on ceremonies.

As discussed in the previous chapter, conspicuous displays support claims to status. All households have to conduct life crisis ceremonies on occasion, and often families go into debt for many years in order to perform them. The interesting thing is that the small tenant and medium owner-cum-tenant categories in Hanumangarh spend proportionately more on ceremonies than do others. With the exception of one small tenant, all of these people are Regars. As part of their strategy of upward mobility, they emphasize showy marriages and funeral processions. Other groups spend proportionately less although actual amounts, as in the case of large cultivators, are more. In Shivpura, the amounts are much less primarily due to the lack of social competition.

What is significant about these expenditures is they are almost entirely in cash which is relatively scarce and could be invested in improved agricultural inputs.** The celebration of such events are not good or bad in and of themselves, and in fact, could provide the

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*Debt servicing does in part build equity, e.g., housing and capital goods. Equity in the case of housing, however, is a moot point as houses are rarely bought or sold. People live in caste neighborhoods which limits the range of potential buyers. It is doubtful that such investments could be converted into liquid assets.

**Most of the kind expenditure is for alms given in grain to mendicants.

incentive for higher productivity and efficiency. But given the loose credit structure and the type of exchanges between moneylenders and debtors, there is no immediacy to generate cash income to meet such expenses, nor is there any necessity to enter the monetized agricultural market in order to obtain cash.

The high allocation for ceremonies also points to the marked effect of social obligations on resource allocation. People are often pressured by cross-cutting demands. One good friend (not in my sample) who often stopped at our house to chat and sort out his affairs provides a good example.

This person, a Brahmin, comes from a family which for many generations has been important in village affairs. His father, until retirement, was an influential merchant and moneylender. Currently they live in a state of decaying gentility supported by his small income as a para-medic and accumulated wealth from his father's business. The family of sixteen members lives in a large, ancient haveli (a multi-storied masonry residence) of which quite literally three-quarters has tumbled to the ground. The family owns about six acres of unirrigated land -- which is rented out -- adjacent to a prosperous irrigated farm operated by a maternal uncle.

Though his salary is sufficient to meet basic recurring expenses, his wife continually complains about their poverty and her inability to wear expensive voile saris of which she is particularly fond. Although at heart a poet and above such mundane concerns, he does on occasion feel the barb of her sharp tongue.

In his contemplation about earning more, he often looks to his land. When we first met, he had about eight thousand rupees from the

family's wealth which he could have invested in a well and pump set. We often discussed this venture and he would become excited about commercial farming, the profits he would make and he would resolve to become a farmer like his maternal uncle.

A few days after such a discussion this decision would be discarded. He had an unmarried sister and to find a suitable match for her, the eight thousand rupees would have to be spent on her marriage. A search for a husband would be made and negotiations initiated. But invariably they would fall through as our friend would again begin to equivocate.

His father was extremely aged and literally at death's door. Since he had been a powerful and respected community leader, at least eight thousand rupees would have to be spent on his funeral and death feast. If this money was not on hand, the ceremonies could not be performed to family and caste expectations.

During most of one year spent in Hanumangarh, this was the cycle of decisions made and unmade with nothing resolved until his father died. Then circumstances forced the issue and the money went into a death feast.

This example also illustrates the great latitude many people have in the use of resources. This person has his basic requirements assured and although a highly remunerative opportunity exists, there is no economic or social necessity for him to take advantage of it. There are no demands or obligations which must be met from his agricultural resources.

Use of Land

Actually, land itself presents little constraint on higher productivity. The area cultivated is less than that available. The large households use a disproportionate amount of land in comparison with other categories, but by no means use all (Table 5.23 and 5.24). Moreover, owner cultivators tend not to make full use of their land.

The higher utilization among tenants is understandable as they do not lease land they do not intend to cultivate. The high utilization of small owners in Shivpura is due to their miniscule holdings. The lack of labor with which to bring land into production may in part explain the behavior of large owners, but is not the case for other owner categories when one looks at the availability of land per labor unit (Table 5.25).

Again, the best explanation is found in the latitude people have in their use of resources. With subsistence assured, particularly for large landowners, there is no necessity for intensive cultivation. As the only absolute requirement to be met from land is food (conditioned by other sources of income), there is little to channel cultivators into more productive and efficient resource use.

The only other obligation is land revenue which, as was mentioned earlier, is nominal and can be met from non-agricultural cash income. The highest tax paid in Hanumangarh is Rs. 300/- on thirty-six acres of irrigated land. In Shivpura, the highest paid is Rs. 150/- on about thirty acres, one-third of which is irrigated. This can be met with but a maximum of three quintals of wheat and revenue in these cases is less than 1 percent of the total value received from production. For smaller

cultivators, land revenue is often equal to a couple of rounds at a local tea shop.*

Given the wide parameters around agricultural production, cultivators can still cater to demands which conflict with productive investments. That they are able to balance these demands at a relatively low level of production is illustrated by an example of a large cultivator in Hanumangarh.

This person owns thirteen and one-quarter acres, one-third of which is irrigated. He had no cash income during 1971-72 and borrowed about Rs. 12,500 at 18 percent interest from several moneylenders. About Rs. 1,500 was spent on agricultural inputs, all of which were traditional ones. Rs. 700 went for capital investments: to replace tools and a bullock which had died. Rs. 1,300 was used for household consumption, Rs. 2,500 for jewelry, Rs. 200 for a bicycle, and Rs. 6,300 for ceremonial expenses. When asked why he did not use improved agricultural inputs, he complained that credit was scarce.

On irrigated land he produced 328 kilograms of grain per acre and on unirrigated, 112 kilograms. Overall he received a value of about Rs. 260 per acre. He operated at a 25 percent loss in relation to total costs although he received a 25 percent return as profits and wages. Out of his production, he was able to meet household food requirements, but only paid off Rs. 500 of his debt. He hopes for better production next year and will be able to pay off his debts (as those incurred for jewelry and ceremonies are not yearly recurring expenses) without having

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*In Shivpura, land revenue assessments have not changed since the 1890s.

to make any change in his production strategy. He is below the ceiling he knows he can repay.

One might argue the problem is one of profitability; that the return from investments in agriculture is not sufficiently remunerative. This is not the case, particularly if one looks at the return with existing methods. Even with the higher investments required for the new varieties, the return is very large.

The following estimate of return on investment comes from a development officer whose family runs a successful commercial farm in Bharatpur District. It assumes the cultivator hires a tractor and all labor, has irrigated land, and that he uses the new recommended practices. The estimate is for one acre of high yielding variety wheat (Kalyan Sona) which is grown during rabi.

Costs

Plowing	Rs. 80/-
Levelling	Rs. 15/-
Sowing	Rs. 25/-
Seed	Rs. 80/-
Manure (organic)	Rs. 40/-
Chemical fertilizer	Rs. 140/-
Pesticides	Rs. 25/-
Irrigation	Rs. 125/-
Weeding	Rs. 15/-
Harvesting	Rs. 35/-
Threshing and Winnowing	Rs. 70/-
Total	Rs. 650/- (per acre cost for Kalyan Sona)

If a cultivator performs all necessary operations and if there is no climatic disaster, production should be about twenty quintals (2,000 kilograms). The value of this grain at the government's procurement price is about Rs. 1,650 at the rate of Rs. 82.50 per quintal. The open market price, however, is much higher. During the year of study, wheat

rose to Rs. 150/- per quintal.* Valued at the open market price, the gross receipt would be Rs. 3,000. Even if costs of depreciation and servicing of debts for capital improvements are included, the return is still very large.

This is not the highest production possible with Kalyan Sona. It is possible to get up to twenty-seven quintals per acre. For other wheat varieties, production up to forty-five quintals is possible although this is under ideal conditions and on the best of land (Government of Rajasthan, 1972: 20).

Very few cultivators approach this level. In Hanumangarh, the one Baniya cultivator produces ten quintals per acre on five acres planted to Kalyan Sona, applying less than one-quarter the recommended fertilizer dosage. The value received on his crop for that year was Rs. 3,725 and he made a return of 167 percent over recurring expenses including his own labor. Similarly, in Shivpura a large cultivator produced twelve and one-half quintals per acres on the eight-tenths acre he planted a hybrid wheat, also applying about one-quarter of recommended fertilizer. His crop was worth Rs. 941 and he received a 24 percent return over recurring expenses including his own labor.

With the exception of the market orientation of a few persons, production is geared to consumption and social needs. As for large cultivators, they have little difficulty providing for themselves and maintaining their superior position. Even though they could be more productive and earn more income, there is no compelling need to do so.

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*The open market price rose to Rs. 260/- and dropped to Rs. 230/- during 1974. Some input prices also rose especially petroleum based fertilizers.

The majority of households follow a peasant strategy and are able to fulfill their goal: that of meeting household consumption requirements. This they do despite low productivity as it is supplemented by income earned from other sources and the moneylender's easy credit. They are viable economic units, and given their own priorities, are under no pressure to change. The structure of relationships in which they participate defines what is sufficient and necessary, and these are met by existing strategies and levels of production.

Implications and Conclusions

I do not want to foster the impression that social and economic life in either village is in harmonious equilibrium. Land reform, development programs, the new state and national polity, a monetized market economy and the commercialization of agriculture are altering the relationship between the two villages and wider society and in the process changing local organizational patterns. Social relations of production are being altered by technological innovations. The distribution of goods and services is changing due to the reorganization of production patterns, the introduction of industrial goods and resources flowing in from the outside. Patron-client relations are moving from a bound to a contractual arrangement with patrons becoming brokers with higher levels of integration. Clientele bases are being redefined and large segments of the community are becoming peripheral to the new form of organization. The manner in which socio-economic relations are evaluated is also changing, which along with all other alterations leads to the contradictions and paradoxes encountered.

Neither is everyone getting all they may desire from this new arrangement. Some groups (quite obviously the large cultivators) have been the major beneficiaries of change and are the ones who control the process at the local level. Other groups, particularly the landless laborer-cum-tenants, have been adversely affected. The ties of interdependency which integrated them into the local economy and polity are broken and they are now dependent on largess from dominant groups. Neither is there a wholesale acceptance of the status quo. In Hanumangarh, particularly, there is competition between groups over the control of goods, services and social processes. There are also upwardly mobile groups.

Changes are also occurring in agriculture as evidenced by the orientation of a few cultivators toward the monetized sector and production for market sales. The majority of cultivators, however, still follow a subsistence strategy with minimal involvement in monetized agricultural markets.

The degree to which this can be seen as a defense mechanism, that peasants try to hold the outside world at arms length, is debatable (Wolf, 1957: passim). First, this strategy can be seen as an adaptation to the previous set of conditions in which agriculture was not a highly profitable venture. The enhanced opportunity structure is a relatively recent phenomenon of the past decade or so. Previously, agriculture's primary function was only the provisioning of household food requirements. Second, people do not act or conceive of themselves as corporate communities holding off all others. Each village is highly stratified and lacks the egalitarianism typical of corporate communities which tends to spread "life risks" amongst all its members. Ceremonial outlays, for

instance, do not act as levelling devices; they emphasize, rather, distinctions in wealth and status. Third, there are few direct demands put upon agricultural resources or products by higher levels of authority. The appropriation of value (primitive accumulation) generated in the subsistence sector by a monetized capitalist sector does occur. But this is indirectly, through credit arrangements, and is not necessarily perceived as such by people being "exploited." Fourth, cultivators participate in monetized exchanges in other contexts and it is difficult to conceive of them walling off just agriculture and not everything else as well.

It is significant that there are few demands put upon agricultural resources. The necessity to generate the wherewithal to maintain a household and participate in social life does not have to be entirely met from agriculture. Given the alternatives, the various ways in which agriculture can be practiced and evaluated, other sources of income and the differential effect of social relations on resource allocation, it is little wonder that such wide variations occur. In effect, the enhanced opportunity induced by development programs has only added another alternative to the economic environment. Until less productive and efficient alternatives become unviable (either through conscious design or unconscious processes of the system), there is little to channel production behavior into a more uniform pattern. Variations, until such time, will persist and endure.

TABLE 5.1. Household Composition: Hanumangarh and Shivpura

Item	Hanumangarh							Shivpura				
	Small			Medium		Large	All Sizes	Small	Medium	Large		All Sizes
	O	T	O/T	O	O/T	O		O	O	O	O/T	
No. of Households	16	6	6	7	3	6	44	2	2	5	1	10
% of Total	36.5%	13.6%	13.6%	15.9%	6.8%	13.6%	100%	20.0%	20.0%	50.0%	10.0%	100%
No. of Persons	113	47	51	83	23	104	421	13	14	57	12	96
% of Total	26.8%	11.2%	12.1%	19.7%	5.5%	24.7%	100%	13.5%	14.6%	59.4%	12.5%	100%
Average Members @ Household	7.06	7.83	8.50	11.86	7.66	17.33	9.57	6.50	7.00	11.40	12.00	9.60
Consumption Units @ Household	5.44	6.43	6.86	9.10	6.20	13.18	7.46	4.41	5.01	8.98	8.39	7.21
Labor Units @ Household	4.33	5.58	5.46	6.72	4.77	8.79	5.68	3.66	3.66	6.72	5.49	5.37

Note: Consumption units are calculated by assigning values to members according to sex and age characteristics. The same values were used to calculate labor units for those of working age (See Epstein, 1962, pp. 42-43).

TABLE 5.2. Distribution of Land, Income and Expendable Resources by Household Composition: Hanumangarh and Shivpura

Item	Hanumangarh							Shivpura				
	Small			Medium		Large	All Sizes	Small	Medium	Large		All Sizes
(No. of Households)	O (16)	T (6)	O/T (6)	O (7)	O/T (3)	O (6)	(44)	O (2)	O (2)	O (5)	O/T (1)	(10)
Land Owned (Acres)												
@ Capita	.41	--	.11	.52	.32	1.37	.58	.10	.80	2.08	.08	1.38
@ Consumption Unit	.53	--	.14	.67	.39	1.80	.74	.14	1.12	2.65	.12	1.83
@ Labor Unit	.66	--	.18	.91	.51	2.70	.98	.17	1.53	3.54	.18	2.46
Cash and Kind Income (Rs.)												
@ Capita	490	583	463	531	567	1775	827	323	766	1130	911	940
@ Consumption Unit	636	710	573	692	701	2335	1060	476	1070	1368	1302	1252
@ Labor Unit	799	818	720	937	911	3500	1393	574	1464	1828	1990	1681
Expendable Cash and Kind Resources (Rs.)												
@ Capita	868	955	654	716	1053	2263	1176	442	1228	1550	1095	1296
@ Consumption Unit	1127	1163	811	933	1300	2975	1509	651	1716	1968	1566	1726
@ Labor Unit	1416	1340	1018	1263	1690	4462	1981	784	2349	2630	2393	2318

TABLE 5.3. Adoption and Use of High Yielding Varieties: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households)	(16)	(6)	(6)	(7)	(3)	(6)	(44)
No. of Adopters	5	1	1	2	2	3	14
% of Cultivators	31%	17%	17%	29%	67%	50%	32%
Acreage Under Hybrid Varieties:							
Irrigated	1.50	0.00	1.00	7.50	3.75	38.00	51.75
% of Irrigated	9%	0%	13%	18%	32%	31%	26%
Unirrigated	7.31	3.00	0.00	10.62	3.75	7.50	32.18
% of Unirrigated	24%	23%	0%	68%	19%	20%	25%
All Land	8.81	3.00	1.00	18.12	7.50	45.50	83.93
% of All Land	18%	22%	4%	35%	24%	29%	25%

Note: Figures refer to acres planted in both kharif and rabi.

TABLE 5.4. Adoption and Use of High Yielding Varieties: Shivpura

Item	Small	Medium	Large		All Sizes
	0	0	O	O/T	
(No. of Households)	(2)	(2)	(5)	(1)	(10)
No. of Adopters	0	1	5	1	7
% of Cultivators	0%	50%	100%	100%	70%
Acreage Under Hybrid Varieties:					
Irrigated	-	0	8.60	.80	9.40
% of Irrigated	-	0%	22%	9%	18%
Unirrigated	0	.80	6.40	5.00	12.20
% of Unirrigated	0%	14%	7%	27%	10%
All Land	0	.80	15.00	5.80	21.60
% of All Land	0%	7%	11%	21%	12%

Note: Figures refer to acres planted in both kharif and rabi.

TABLE 5.5. Average Income Per Household: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households)	(16)	(6)	(6)	(7)	(3)	(6)	(44)
Total Income	3461	4566	3932	6297	4345	30769	7911
	52-48	69-31	46-54	67-33	27-73	65-35	56-44
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Source							
Agriculture	847	435	1981	3113	2964	15141	3400
	5-95	0-100	10-90	13-87	8-92	41-59	28-72
	24.5%	9.5%	50.4%	49.4%	68.2%	49.2%	43.0%
Animal Husbandry	989	1134	819	1734	477	4339	1526
	33-67	30-70	60-40	32-68	0-100	59-41	44-56
	28.6%	24.8%	20.8%	27.5%	11.0%	14.1%	19.3%
Tractor and Animal Rentals*	185	--	--	14	--	5600	833
	5.3%			0.2%		18.2%	10.5%
Household Industry*	104	407	80	--	80	--	110
	3.0%	8.9%	2.0%		1.8%		1.4%
Labor	469	400	552	509	824	--	433
	100-0	100-0	100-0	42-58	100-0		89-11
	13.6%	8.8%	13.3%	8.1%	19.0%		5.5%
Business*	152	--	158	464	--	1500	355
	4.4%		4.0%	7.4%		4.9%	4.5%
Salary*	499	717	330	460	--	2959	801
	14.4%	15.7%	8.4%	7.3%		9.6%	10.1%
Moneylending*	--	887	--	--	--	530	193
		19.4%				1.7%	2.4%
Property Rentals* (Non-agricultural)	--	261	--	--	--	700	131
		5.7%				2.3%	1.7%
Jajmani Work	197	191	--	--	--	--	98
	0-100	4-96					1-99
	5.7%	4.2%					1.2%
Other*	19	134	42	3	--	--	31
	0.5%	3.0%	1.1%	0.1%			0.4%

Key: Underlined figures: total cash and kind income.
Hyphenated figures: percentage of income in cash and kind respectively.
Percentage figures: percentage of income derived from source.

* Cash income only for all size categories.

TABLE 5.6. Average Income Per Household: Shivpura

Item	Small	Medium	Large		All Sizes
(No. of Households)	O (2)	O (2)	O (5)	O/T (1)	(10)
Total Income	2099 46-54 100.0%	5360 49-51 100.0%	12884 14-86 100.0%	10927 18-82 100.0%	9027 20-80 100.0%
Source					
Agriculture	87 0-100 4.2%	1557 46-54 29.0%	10008 14-86 77.7%	8005 2-98 73.2%	6134 14-86 68.0%
Animal Husbandry	637 0-100 30.3%	2173 13-87 40.5%	2504 3-97 19.4%	1122 0-100 10.3%	1926 5-95 21.3%
Animal Rentals	--	--	12 100-0 0.1%	--	6 100-0 0.1%
Labor	1375 71-29 65.5%	1450 100-0 27.1%	--	1800 100-0 16.5%	745 89-11 8.2%
Business	--	180 100-0 3.4%	--	--	36 100-0 0.4%
Salary	--	--	240 100-0 1.9%	--	120 100-0 1.3%
Other	--	--	120 100-0 0.9%	--	60 100-0 0.7%

TABLE 5.7. Production Performance - All Land: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households)	(16)	(6)	(6)	(7)	(3)	(6)	(44)
No. Acres Planted	48.22	13.75	22.71	56.75	31.00	158.50	330.93
Production:							
Kgs. Grain (Total)	9205	1614	9459	17330	6750	69460	113818
@ Household	575	269	1576	2476	2250	11577	2587
@ Acre	191	117	417	305	218	438	344
Kgs. Other* (Total)	688	170	74	471	95	2628	4126
@ Household	43	28	12	67	32	438	94
@ Acre	14	12	3	8	3	17	12
Value Received (Rs.)	13565	2611	11887	21787	8893	90843	149586
@ Household	848	435	1981	3112	2964	15141	3400
@ Acre	281	190	523	384	286	573	452
Profits @ Acre (Rs.)	-61	-211	95	-33	-93	121	32
% Return	-18%	-53%	22%	-8%	-25%	27%	8%
	4**	1	1	3	0	4	13
P/W - 1 @ Acre (Rs.)	27	-159	228	157	-12	218	143
% Return	11%	-46%	77%	69%	-4%	61%	46%
	9	1	3	6	1	6	26
P/W - 2 @ Acre (Rs.)	85	-145	277	221	8	272	194
% Return	43%	-43%	112%	136%	3%	90%	75%
	10	1	4	7	1	6	29
P/W - 3 @ Acre (Rs.)	53	-134	277	218	6	187	151
% Return	23%	-41%	112%	131%	2%	49%	50%
	10	1	4	7	1	5	28

Key: Profits = Return to total cash and kind costs.
P/W - 1 = Profits and wages. Profits plus subsistence labor.
P/W - 2 = Profits and wages. Profits plus subsistence labor and subsistence costs not met from product.
P/W - 3 = Profits and wages. Profits plus subsistence labor and subsistence costs not met from product, plus cash depreciation minus cash outlays for capital goods.

* Other includes subsidiary food crops such as lentils.
**All underlined figures indicate numbers of households operating at a profit.

Note: Percentages for return are calculated with original figures and not the per acre ones.

TABLE 5.8. Production Performance - All Land: Shivpura

Item	Small	Medium	Large		All Sizes
	O	O	O	O/T	
(No. of Households)	(2)	(2)	(5)	(1)	(10)
No. Acres Planted	2.52	10.80	132.60	27.60	173.52
Production:					
Kgs. Grain (Total)	146	1760	43880	6200	51986
@ Household	73	880	8776	6200	5199
@ Acre	58	163	331	225	300
Kgs. Other (Total)	1	200	1697	565	2463
@ Household	.5	100	339	565	246
@ Acre	.4	19	13	20	14
Kgs. Oilseed (Total)	5	400	1370	262	2037
@ Household	2.5	200	274	262	204
@ Acre	2	37	10	9	12
Value Received (Rs.)	173	3115	49988	8005	61281
@ Household	87	1558	9998	8005	6128
@ Acre	69	288	377	290	353
Profits @ Acre (Rs.)	-66	60	139	-64	98
% Return	-49%	27%	58%	-18%	39%
	0	1	4	0	5
P/W - 1 @ Acre (Rs.)	-18	130	238	46	197
% Return	-21%	83%	172%	19%	126%
	0	1	5	1	7
P/W - 2 @ Acre (Rs.)	-14	204	314	67	263
% Return	-17%	242%	501%	30%	293%
	0	1	5	1	7
P/W - 3 @ Acre (Rs.)	- 14	213	297	67	253
% Return	- 17%	282%	392%	30%	254%
	0	2	5	1	8

Key: See Table 5.7.

TABLE 5.9. Production Performance - Irrigated Land: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households)	(6)	(1)	(2)	(5)	(2)	(5)	(21)
No. Acres Planted	17.32	.75	7.75	41.13	11.75	121.00	199.70
Production:							
Kgs. Grain (Total)	6390	480	4800	15550	6040	64180	97440
@ Household	1065	480	2400	3110	3020	12836	4640
@ Acre	369	640	619	378	514	530	488
Kgs. Other (Total)	69	0	0	118	0	1898	2035
@ Household	12	0	0	24	0	380	97
@ Acre	4	0	0	2	0	16	10
Value Received (Rs.)	8046	498	5675	18307	7789	83259	123574
@ Household	1341	498	2838	3661	3895	16652	5884
@ Acre	465	664	732	445	663	688	619
Profits @ Acre (Rs.)	-34	-788	91	-70	-41	168	82
% Return	-7%	-54%	14%	-14%	-6%	32%	15%
	4	0	1	2	1	4	13
P/W - 1 @ Acre (Rs.)	106	-635	346	172	80	263	220
% Return	29%	-49%	90%	63%	14%	62%	55%
	5	0	2	4	1	5	17
P/W - 2 @ Acre (Rs.)	204	-577	457	255	110	321	287
% Return	78%	-47%	166%	135%	20%	87%	86%
	5	0	2	5	1	5	18
P/W - 3 @ Acre (Rs.)	149	-364	457	274	109	218	224
% Return	47%	-35%	166%	161%	20%	46%	57%
	5	0	2	5	1	4	17

Key: See Table 5.7.

TABLE 5.10. Production Performance - Irrigated Land: Shivpura

Item	Small	Medium	Large		All Sizes
(No. of Households)	O (0)	O (1)	O (5)	O/T (1)	(7)
No. Acres Planted	--	5.20	39.60	8.80	53.60
Production:					
Kgs. Grain (Total)	--	1320	29080	3280	33680
@ Household	--	1320	5816	3280	4811
@ Acre	--	254	734	373	628
Kgs. Other (Total)	--	190	237	--	427
@ Household	--	190	47	--	61
@ Acre	--	37	6	--	8
Kgs. Oilseed (Total)	--	400	--	--	400
@ Household	--	400	--	--	57
@ Acre	--	77	--	--	7
Value Received (Rs.)	--	2546	28945	3380	34871
@ Household	--	2546	5789	3380	4982
@ Acre	--	490	731	384	651
Profits @ Acre (Rs.)	--	279	314	-158	233
% Return	--	133%	75%	-29%	56%
		1	5	0	6
P/W - 1 @ Acre (Rs.)	--	341	489	5	395
% Return	--	229%	203%	1%	155%
		1	5	1	7
P/W - 2 @ Acre (Rs.)	--	439	600	37	492
% Return	--	864%	458%	11%	310%
		1	5	1	7
P/W - 3 @ Acre (Rs.)	--	439	568	37	468
% Return	--	864%	349%	11%	257%
		1	5	1	7

Key: See Table 5.7.

TABLE 5.11. Production Performance - Unirrigated Land: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households)	(12)	(5)	(5)	(3)	(3)	(4)	(32)
No. Acres Planted	30.90	13.00	14.96	15.62	19.25	37.50	131.23
Production:							
Kgs. Grain (Total)	2455	1134	4659	1780	710	5280	16018
@ Household	205	227	932	593	237	1320	501
@ Acre	80	87	311	114	37	141	122
Kgs. Other (Total)	619	170	74	403	95	730	2091
@ Household	52	34	15	134	32	183	65
@ Acre	20	13	5	26	5	19	16
Value Received (Rs.)	5519	2113	6212	3480	1104	7584	26012
@ Household	460	423	1242	1160	368	1896	813
@ Acre	179	163	415	223	57	202	198
Profits @ Acre (Rs.)	-77	-179	97	65	-124	-30	-44
% Return	-30%	-52%	31%	41%	-69%	-13 %	-18%
	1	1	1	2	0	2	7
P/W - 1 @ Acre (Rs.)	-17	-132	167	117	-68	73	27
% Return	-9%	-45%	67%	110%	-54%	56%	16%
	4	1	2	2	1	3	13
P/W - 2 @ Acre (Rs.)	18	-120	183	132	-54	112	53
% Return	11%	-42%	78%	145%	-49%	125%	37%
	6	1	3	3	1	4	18
P/W - 3 @ Acre (Rs.)	19	-120	183	111	-54	97	46
% Return	12%	-42%	78%	99%	-49%	92%	30%
	6	1	3	3	1	3	17

Key: See Table 5.7.

TABLE 5.12. Production Performance - Unirrigated Land: Shivpura

Item	Small	Medium	Large		All Sizes
(No. of Households)	O (2)	O (1)	O (5)	O/T (1)	(9)
No. Acres Planted	2.52	5.60	93.00	18.80	119.92
Production:					
Kgs. Grain (Total)	146	440	14800	2920	18306
@ Household	73	440	2960	2920	2034
@ Acre	58	79	159	155	153
Kgs. Other (Total)	1	10	1460	565	2036
@ Household	.5	10	292	565	226
@ Acre	.4	2	16	30	17
Kgs. Oilseed (Total)	5	0	1370	262	1637
@ Household	2.5	0	274	262	182
@ Acre	2	0	15	14	13
Value Received (Rs.)	173	569	21043	4625	26410
@ Household	87	569	4209	4625	2934
@ Acre	69	102	226	246	220
Profits @ Acre (Rs.)	-66	-154	64	-20	39
% Return	-49%	-58%	40%	-7%	21%
	0	0	3	0	3
P/W - 1 @ Acre (Rs.)	-18	-67	131	65	109
% Return	-21%	-39%	138%	36%	102%
	0	0	5	1	6
P/W - 2 @ Acre (Rs.)	-14	-15	193	82	161
% Return	-17%	-13%	572%	50%	273%
	0	0	5	1	6
P/W - 3 @ Acre (Rs.)	-14	3	198	82	166
% Return	-17%	3%	691%	50%	306%
	0	1	5	1	7

Key: See Table 5.7.

TABLE 5.13. Distribution of Highs and Lows in Production Performance - All Land: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households	(16)	(6)	(6)	(7)	(3)	(6)	(44)
	High/Low	High/Low	High/Low	High/Low	High/Low	High/Low	High/Low
No. Acres Planted	5.50/.69	5.00/.75	5.50/2.50	14.63/7.00	13.75/6.00	48.75/13.13	48.75/.69
Production:							
Kgs. Grain	2440/00	800/4	4800/00	6200/300	5920/30	21800/800	21800/00
@ Acre	582/00	160/3	1477/00	587/37	431/5	991/61	1477/00
Kgs. Other	135/00	136/00	46/00	220/00	51/00	1340/00	1340/00
@ Acre	87/00	45/00	11/00	49/00	4/00	36/00	87/00
Value Received (Rs.)	2960/30	1247/53	5388/00	6499/516	7861/40	26628/1675	26628/00
@ Acre	718/42	664/18	1658/00	723/64	571/7	1179/128	1658/00
Profits @ Acre (Rs.)	337/-262	53/-788	1148/-146	208/-363	-10/-180	235/-84	1148/-788
% Return	89/-86%	36/-95%	225/-100%	51/-58%	- 2/-96%	47/-36%	225/-100%
P/W - 1 @ Acre (Rs.)	355/-212	113/-635	1280/-89	400/-27	108/-118	359/46	1280/-635
% Return	108/-83%	126/-94%	338/-100%	150/-9%	23/-95%	120/25%	338/-100%
P/W - 2 @ Acre (Rs.)	455/-155	113/-577	1313/-89	497/15	139/-118	548/57	1313/-577
% Return	285/-78%	126/-93%	381/-100%	220/31%	32/-95%	166/66%	381/-100%
P/W - 3 @ Acre (Rs.)	412/-207	113/-364	1313/-89	433/15	139/-118	343/-29	1313/-364
% Return	434/-78%	126/-93%	381/-100%	252/31%	32/-95%	185/-4%	434/-100%

Key: See Table 5.7.

TABLE 5.14. Distribution of Highs and Lows in Production Performance - All Land: Shivpura

Item	Small	Medium	Large		All Sizes
	O	O	O	O/T	
(No. of Households)	(2)	(2)	(5)	(1)	(10)
	High/Low	High/Low	High/Low		High/Low
No. Acres Planted	1.32/1.20	5.60/5.20	33.20/16.80	27.60	33.20/1.20
Production					
Kgs. Grain	90/56	1320/440	22860/3320	6200	22860/56
@ Acre	75/42	254/79	772/172	225	772/42
Kgs. Other	1/00	190/10	675/70	565	675/00
@ Acre	1/00	36/1	20/3	20	36/00
Kgs. Oilseed	5/00	400/00	480/170	262	480/00
@ Acre	4/00	77/00	19/5	10	77/00
Value Received (Rs.)	101/72	2546/569	22973/4205	8005	22973/72
@ Acre	84/56	490/102	776/219	290	776/56
Profits @ Acre (Rs.)	-52/-82	279/-143	474/-8	-64	474/-143
% Return	-49/-49%	132/-60%	157/-3%	-18%	157/-60%
P/W - 1 @ Acre (Rs.)	-14/-23	341/-65	625/82	46	625/-65
% Return	-20/-21%	229/-39%	412/49%	19%	412/-39%
P/W - 2 @ Acre (Rs.)	-14/-14	439/-15	724/188	67	724/-14
% Return	-14/-21%	864/-13%	1410/161%	30%	1410/-21%
P/W - 3 @ Acre (Rs.)	-14/-14	439/3	719/148	67	719/-14
% Return	-14/-21%	864/3%	1275/115%	30%	864/-21%

Key: See Table 5.7.

TABLE 5.15. Distribution of Highs and Lows in Production Performance - Irrigated Land: Hanumangarh

Item	Small			Medium		Large	All Sizes
(No. of Households)	O (6)	T (1)	O/T (2)	O (5)	O/T (2)	O (5)	(21)
	High/Low		High/Low	High/Low	High/Low	High/Low	High/Low
No. Acres Planted	5.50/.69	.75	5.50/2.25	14.63/4.00	10.00/1.75	48.75/7.50	48.75/.69
Production:							
Kgs. Grain	2440/400	480	2800/2000	6200/1600	5600/440	21800/2800	21800/400
@ Acre	693/211	640	889/509	587/213	560/251	991/373	991/211
Kgs. Other	60/00	00	00/00	25/00	00/00	940/00	940/00
@ Acre	11/00	00	00/00	6/00	00/00	35/00	35/00
Value Received (Rs.)	2960/494	498	3491/2184	6499/1864	7323/466	26628/3270	26628/494
@ Acre	939/272	664	971/635	722/249	732/266	1179/436	1179/266
Profits @ Acre (Rs.)	432/-348	-788	450/-55	189/-363	5/-309	235/-20	450/-788
% Return	88/-56%	-54%	87/-8%	35/-58%	1/-54%	58/-4%	88/-58%
P/W - 1 @ Acre (Rs.)	626/-179	-635	576/252	400/-27	132/-222	359/146	576/-635
% Return	200/-13%	-49%	146/56%	124/-9%	22/-46%	135/44%	200/-49%
P/W - 2 @ Acre (Rs.)	638/-58	-577	598/400	497/68	163/-196	548/245	638/-577
% Return	228/-18%	-47%	176/160%	220/35%	29/-42%	165/64%	228/-47%
P/W - 3 @ Acre (Rs.)	638/-15	-364	598/400	522/79	163/-196	384/-18	638/-364
% Return	211/-10%	-35%	170/160%	260/42%	29/-43%	182/-3%	260/-43%

Key: See Table 5.7.

TABLE 5.16. Distribution of Highs and Lows in Production Performance - Irrigated Land: Shivpura

Item	Small	Medium	Large		All Sizes
	O	O	O	O/T	
(No. of Households)	(0)	(1)	(5)	(1)	(7)
			High/Low		High/Low
No. Acres Planted	--	5.20	11.80/5.20	8.80	11.80/5.20
Production:					
Kgs. Grain	--	1320	15000/2520	3280	15000/1320
@ Acre	--	254	1500/420	373	1500/254
Kgs. Other	--	190	97/56	00	190/56
@ Acre	--	36	14/7	00	44/7
Kgs. Oilseed	--	400	00/00	00	400/00
@ Acre	--	77	00/00	00	77/00
Value Received (Rs.)	--	2546	13853/2624	3380	13853/2546
@ Acre	--	490	1385/437	384	1385/384
Profits @ Acre (Rs.)	--	279	824/14	-158	824/-158
% Return	--	133%	147/3%	-29%	147/-29%
P/W - 1 @ Acre (Rs.)	--	341	1121/181	5	1121/5
% Return	--	229%	424/71%	1%	424/1%
P/W - 2 @ Acre (Rs.)	--	439	1290/283	37	1290/37
% Return	--	864%	1354/142%	11%	1354/11%
P/W - 3 @ Acre (Rs.)	--	439	1278/255	37	1278/37
% Return	--	864%	1202/66%	11%	1202/11%

Key: See Table 5.7.

TABLE 5.17. Distribution of Highs and Lows in Production Performance - Unirrigated Land: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households	(12)	(5)	(5)	(3)	(3)	(4)	(32)
	High/Low	High/Low	High/Low	High/Low	High/Low	High/Low	High/Low
No. Acres Planted	4.50/.75	5.00/1.25	4.55/1.00	8.13/3.00	9.50/3.75	13.13/3.00	13.13/.75
Production:							
Kgs. Grain	640/00	800/4	2800/00	1000/300	360/30	3420/800	3420/00
@ Acre	213/00	160/3	2800/00	333/40	85/5	288/61	2800/00
Kgs. Other	135/00	135/00	46/00	220/23	51/00	400/00	400/00
@ Acre	87/00	45/00	11/00	49/9	12/00	133/00	133/00
Value Received (Rs.)	967/30	1247/23	3204/00	1770/516	538/40	3986/753	3986/00
@ Acre	489/23	249/18	3204/00	590/64	143/7	336/123	3204/00
Profits @ Acre (Rs.)	64/-262	53/-511	2717/-146	285/-13	-49/-180	131/-136	2717/-511
% Return	11/-86%	35/-95%	558/-100%	94/-17%	-25/-96%	109/-53%	558/-100%
P/W - 1 @ Acre (Rs.)	137/-154	113/-511	2863/-89	338/-13	44/-118	160/-21	2863/-511
% Return	75/-83%	126/-94%	838/-100%	150/17%	45/-95%	122/-14%	838/-100%
P/W - 2 @ Acre (Rs.)	286/-154	113/-478	2923/-89	394/15	73/-118	210/57	2923/-478
% Return	285/-78%	126/-93%	1038/-100%	200/31%	105/-95%	168/81%	1038/-100%
P/W - 3 @ Acre (Rs.)	314/-154	113/-478	2923/-89	351/15	73/-118	219/-123	2923/-478
% Return	434/-78%	126/-93%	1038/-100%	147/31%	105/-95%	190/-33%	1038/-100%

Key: See Table 5.7.

TABLE 5.18. Distribution of Highs and Lows in Production Performance - Unirrigated Land: Shivpura

Item	Small	Medium	Large		All Sizes
(No. of Households)	O (2)	O (1)	O (5)	O/T (1)	(9)
	High/Low		High/Low		High/Low
No. Acres Planted	1.32/1.20	5.60	28.00/10.80	18.80	28.00/1.20
Production					
Kgs. Grain	90/56	440	7860/800	2920	7860/56
@ Acre	75/42	79	401/74	155	401/42
Kgs. Other	1/00	10	675/70	565	675/00
@ Acre	1/00	2	24/4	30	30/00
Kgs. Oilseed	5/00	0	480/170	262	480/00
@ Acre	4/00	0	33/6	14	33/00
Value Received (Rs.)	101/72	569	9120/1581	4625	9120/72
@ Acre	84/56	102	465/141	246	465/56
Profits @ Acre (Rs.)	-52/-82	-154	296/-30	-20	296/-154
% Return	-49/-49%	-58%	174/-17%	-7%	174/-58%
P/W - 1 @ Acre (Rs.)	-14/-23	- 65	371/27	65	371/-65
% Return	-21/-21%	-39%	395/22%	36%	395/-39%
P/W - 2 @ Acre (Rs.)	-14/-14	- 15	436/113	82	436/-15
% Return	-14/-21%	-13%	1505/207%	50%	1505/-21%
P/W - 3 @ Acre (Rs.)	-14/-14	3	434/119	82	434/-14
% Return	-14/-21%	3%	1401/289%	50%	1401/-21%

Key: See Table 5.7.

TABLE 5.19. Average Resources Per Household: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households)	(16)	(6)	(6)	(7)	(3)	(6)	(44)
Total Resources	6131	7476	5562	8486	8063	39217	11254
	71-29	80-20	61-39	49-51	60-40	72-28	68-32
	100%	100%	100%	100%	100%	100%	100%
Source:							
Own	3471	4567	3962	6512	4358	31617	8070
	48-52	69-31	46-54	33-67	27-73	65-35	68-32
	57%	61%	71%	77%	54%	81%	72%
Borrowed	2660	2909	1600	1974	3705	7600	3184
	97-3	99-1	97-3	97-3	99-1	100-0	98-2
	43%	39%	29%	23%	46%	19%	28%

Key: Underlined figures: total cash and kind resources.
Hyphenated figures: percentage of resources in cash and kind respectively.
Percentage figures: percentage of resources derived from source.

TABLE 5.20. Average Resources Per Household: Shivpura

Item	Small	Medium	Large		All Sizes
	O	O	O	O/T	
(No. of Households)	(2)	(2)	(5)	(1)	(10)
Total Resources	2870	8597	17675	13139	12445
	61-39	66-34	34-66	31-69	40-60
	100%	100%	100%	100%	100%
Source:					
Own	2104	6004	17203	11131	11336
	46-54	52-48	34-66	18-82	35-65
	73%	70%	97%	85%	91%
Borrowed	766	2593	472	2008	1109
	100-0	100-0	58-42	100-0	91-9
	27%	30%	3%	15%	9%

TABLE 5.21. Average Resource Allocation Per Household: Hanumangarh

Item	Small			Medium		Large	All Sizes
	O	T	O/T	O	O/T	O	
(No. of Households)	(16)	(6)	(6)	(7)	(3)	(6)	(44)
Total Allocation	6033	7257	5381	8475	8062	38433	11056
	71-29	80-20	60-40	49-51	60-40	72-28	68-32
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Allocated To:							
Agriculture (Recurring)	897	1010	1400	2063	3567	10688	2684
	73-27	78-22	51-49	59-41	40-60	75-25	68-32
	14.9%	13.9%	26.0%	24.3%	44.2%	27.8%	24.3%
Agriculture* (Investment)	146	180	11	235	98	3023	535
	2.4%	2.5%	0.2%	2.8%	1.2%	7.9%	4.8%
Ag. Related (Recurring)	230	134	180	395	251	4647	841
	56-44	50-50	6-94	30-70	56-44	68-32	61-39
	3.8%	1.8%	3.3%	4.7%	3.1%	12.1%	7.6%
Ag. Related (Investment)	33	--	198	230	100	876	202
	100-0		100-0	68-32	100-0	100-0	94-6
	0.5%		3.7%	2.7%	1.3%	2.3%	1.8%
Household (Recurring)	2913	3240	2914	4420	2794	11409	4347
	56-44	66-34	56-44	29-71	66-34	42-58	48-52
	48.3%	44.7%	54.2%	52.2%	34.7%	29.7%	39.3%
Household (Investment)	1121	575	73	111	50	3977	1060
	100-0	91-9	100-0	100-0	100-0	98-2	98-2
	18.6%	7.9%	1.4%	1.3%	0.6%	10.3%	9.6%
Ceremonial	693	2118	605	1021	1202	3813	1387
	93-7	99-1	95-5	97-3	97-3	96-4	97-3
	11.5%	29.2%	11.2%	12.0%	14.9%	9.9%	12.6%
Debt Principal**	(577)	(1571)	(701)	(791)	(645)	(6542)	(1581)
	74-26	97-3	70-30	51-49	65-35	83-17	80-20
	9.6%	21.6%	13.0%	9.4%	8.0%	17.0%	14.3%
Debt Interest**	(102)	(37)	(48)	(53)	(56)	(955)	(191)
	83-17	86-14	60-40	43-57	54-46	80-20	78-22
	1.7%	0.5%	0.9%	0.6%	0.7%	2.5%	1.7%

Key: Underlined figures: total cash and kind allocation.
Hyphenated figures: percentage of allocation in cash and kind respectively.
Percentage figures: percentage of allocation to total allocation.

* Cash allocation only for all size categories.
**Not part of totals. Debt repayments have been merged under appropriate allocation headings.

TABLE 5.22. Average Resource Allocation Per Household: Shivpura

Item	Small	Medium	Large		All Sizes
	O	O	O	O/T	
(No. of Households)	(2)	(2)	(5)	(1)	(10)
Total Allocation	2870	8402	14804	13139	10970
	61-39	66-34	38-62	31-69	43-57
	100.0%	100.0%	100.0%	100.0%	100.0%
Allocated To:					
Agriculture (Recurring)	145	852	3409	7242	2629
	97-3	54-46	42-58	13-87	35-65
	5.1%	10.1%	23.0%	55.1%	24.0%
Agriculture* (Investment)	10	40	860	100	450
	0.3%	0.5%	5.8%	0.8%	4.1%
Ag. Related (Recurring)	8	224	963	69	534
	0-100	45-55	1-99	0-100	4-96
	0.3%	2.7%	6.5%	0.5%	4.9%
Ag. Related (Investment)	--	--	--	--	--
Household (Recurring)	2633	5223	7457	5702	5869
	59-41	55-45	19-81	52-48	32-68
	91.7%	62.2%	50.5%	43.4%	53.5%
Household* (Investment)	25	515	1391	--	804
	0.9%	6.1%	9.4%		7.3%
Ceremonial:	49	1548	724	26	684
	6-94	97-3	84-16	0-100	89-11
	1.7%	18.4%	4.8%	0.2%	6.2%
Debt Principal**	(80)	(600)	(1045)	(1100)	(768)
	100-0	100-0	100-0	40-60	92-8
	2.8%	7.1%	7.1%	8.4%	7.0%
Debt Interest**	(14)	(110)	(96)	(167)	(90)
	0.5%	1.3%	0.6%	1.3%	0.8%

Key: See Table 5.21.

* Cash allocation only for all size categories.

**Not part of totals. Debt repayments have been merged under appropriate allocation headings.

TABLE 5.23. Use of Operational Holdings: Hanumangarh

(No. of Households)	Small O (16)	Small T (6)	Small O/T (6)	Medium O (7)	Medium O/T (3)	Large O (6)	All Sizes (44)
Acres Held							
Wet - Own	15.13	--	2.37	26.38	--	86.62	130.50
Dry - Own	30.97	--	3.49	16.44	7.25	55.62	113.77
Wet - Rented		(.75)	(4.88)		(11.75)		(17.38)
Dry - Rented		(13.00)	(11.50)		(12.00)		(36.50)
Effective Holding	61.23	13.75	23.36*	69.20	31.00	228.86	427.40*
Acres Used - Kharif							
Wet - Own	10.19	--	.50	19.75	--	47.13	77.57
Dry - Own	29.90	--	3.46	15.62	7.25	37.50	93.73
Wet - Rented		(00)	(2.50)		(5.00)		(7.50)
Dry - Rented		(13.00)	(11.50)		(12.00)		(36.50)
Acres Used - Rabi							
Wet - Own	7.13	--	2.37	21.38	--	73.87	104.75
Dry - Own	1.00	--	--	--	--	--	1.00
Wet - Rented		(.75)	(2.38)		(6.75)		(9.88)
Dry - Rented		(00)	(00)		(00)		(00)
Total Acres Used							
Wet - Own	17.32	--	2.87	41.13	--	121.00	182.32
Dry - Own	30.90	--	3.46	15.62	7.25	37.50	94.73
Wet - Rented		(.75)	(4.88)		(11.75)		(17.38)
Dry - Rented		(13.00)	(11.50)		(12.00)		(36.50)
Effective Holding	48.22	13.75	22.71	56.75	31.00	158.50	330.93
Intensity of Use							
Wet - Own	114%	--	121%	156%	--	140%	140%
Dry - Own	99%	--	99%	95%	100%	67%	83%
Wet - Rented		(100%)	(100%)		(100%)		(100%)
Dry - Rented		(100%)	(100%)		(100%)		(100%)
Effective Holding	79%	100%	97%	82%	100%	69%	78%

Note: Effective holding is calculated by counting owned irrigated land twice.

* Figures are adjusted for 1.25 owned irrigated acres uncultivable during kharif due to flooding.

TABLE 5.24. Use of Operational Holdings: Shivpura

Item	Small	Medium	Large		All Sizes
	O	O	O	O/T	
(No. of Households)	(2)	(2)	(5)	(1)	(10)
Acres Held					
Wet - Own	--	5.20	30.80	--	36.00
Dry - Own	1.26	6.00	88.00	1.00	96.26
Wet - Rented				(8.80)	(8.80)
Dry - Rented				(16.80)	(16.80)
Effective Holding	1.26	16.40	149.60	26.60	193.86
	2.52*	22.40*	237.60*	27.60*	290.12*
Acres Used - Kharif					
Wet - Own	--	2.40	12.80	--	15.20
Dry - Own	1.26	2.80	38.60	1.00	43.66
Wet - Rented				(--)	(--)
Dry - Rented				(7.40)	(7.40)
Acres Used - Rabi					
Wet - Own	--	2.80	26.80	--	29.60
Dry - Own	1.26	2.80	54.40	1.00	59.46
Wet - Rented				(8.80)	(8.80)
Dry - Rented				(9.40)	(9.40)
Total Acres Used					
Wet - Own	--	5.20	39.60	--	44.80
Dry - Own	2.52	5.60	93.00	2.00	103.12
Wet - Rented				(8.80)	(8.80)
Dry - Rented				(16.80)	(16.80)
Effective Holding	2.52	10.80	132.60	27.60	173.52
Intensity of Use					
Wet - Own	--	100%	129%	--	124%
Dry - Own	200%	93%	106%	200%	107%
Wet - Rented				(100%)	(100%)
Dry - Rented				(100%)	(100%)
Effective Holding	200%	66%	89%	104%	90%
	100%*	48%*	56%*	100%*	60%*

* Figures with asterisk are for revised effective holding counting owned unirrigated land also twice. Two crops can be taken on such land although yields for the second crop are poor.

TABLE 5.25. Effective Landholding and Its Use by Household Composition: Hanumangarh and Shivpura

Effective Acres	Hanumangarh							Shivpura				
	Small			Medium		Large	All Sizes	Small	Medium	Large		All Sizes
(No. of Households)	O (16)	T (6)	O/T (6)	O (7)	O/T (3)	O (6)	(44)	O (2)	O (2)	O (5)	O/T (1)	(10)
Per Capita												
Available	.54	.29	.46	.83	1.35	2.20	1.02	.10 .19*	1.17 1.60*	2.62 4.17*	2.22 2.30*	2.02 3.02*
Used	.42	.29	.44	.68	1.35	1.52	.79	.19	.77	2.33	2.30	1.81
Per Consumption Unit												
Available	.70	.36	.57	1.09	1.67	2.89	1.30	.14 .29*	1.64 2.24*	3.33 5.29*	3.17 3.29*	2.69 4.02*
Used	.55	.36	.55	.89	1.67	2.00	1.01	.29	1.08	2.95	3.29	2.41
Per Labor Unit												
Available	.88	.41	.71	1.47	2.17	4.34	1.71	.17 .34*	2.24 3.06*	4.45 7.07*	4.85 5.03*	3.61 5.40*
Used	.70	.41	.69	1.21	2.17	3.01	1.33	.34	1.48	3.95	5.03	3.23

* Figures with asterisks are for revised effective holding counting owned unirrigated land also twice.

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