

A STUDY OF CERTAIN ASPECTS OF AGRICULTURAL
LAND TAXATION IN THE STATE
OF PUNJAB (INDIA)

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PREFACE

Land taxation has been very important as a revenue producer in the State of Punjab (India) and is likely to remain an important fiscal ingredient in the economic development of the State. Despite large dependence on it, no systematic study has been carried out to investigate its impact on the agricultural sector. This study is an attempt to fill this gap.

The study was carried out mostly with the material borrowed from various libraries through the library of Oklahoma State University. For this, the author is thankful to all these libraries for their assistance.

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TABLE OF CONTENTS

Chapter	Page
INTRODUCTION.	1
I. THE PUNJAB AND ITS HISTORY	5
Geography	5
Climate	6
The People.	7
The Economy	7
Agricultural Characteristics.	10
The Government.	13
Governmental Objectives	14
Inter-governmental Relations: 1849-1947	22
II. THE PUNJAB LAND TAXES.	24
Pre-1849 Land Taxes	24
The Mogul Period	25
Economic Development Under the Mogul's Land Tax	27
The Punjab Land Tax Under the Sikhs	29
Checks against Oppressive Taxation.	31
Increase of Cultivated Area Under the Sikh Rule	33
The Punjab Land Tax System: 1849-1947.	34
Organizational Structure of the Punjab Land Tax Administration.	39
Changes in the Initial Settlement Procedures.	41
The Sliding Scale System of Revenue Assessment.	48
The Importance of the Land Tax to the Government of the Punjab.	49
III. THEORETICAL CONSIDERATIONS RELATED TO THE 1849-1947 PUNJAB LAND TAX	58
The Nature of the Land Tax.	58
The Rationale of the Land Tax in the Punjab	59
Ricardian Rent Theory.	59
The Effect of a Tax on Rent	64
The Land Tax as a Tax on Rent	64
Taxes Exceeding Economic Rent	66
The Punjab Land Tax as a Tax on Economic Rent	69
Rent-Estimating Procedures in the Punjab.	69
Gross Value of Agricultural Production.	70

Chapter	Page
Tenant Rents.	72
The Method of Land Tax Payment.	74
Constant Taxes Instead of Variable Taxes.	74
Cash Taxes Instead of Tax in Kind	76
Chapter Summary	77
IV. EMPIRICAL EVIDENCE CONCERNING THE NATURE AND EFFECTS OF LAND TAXES IN THE PUNJAB.	78
The Estimates of Net Revenue.	78
The Relationship of Land Taxes to Net Revenue	87
The Primary Effects of Inflexible Land Taxes Which Tend to Exceed Net Revenue.	91
The Land Tax as a Cause of Indebtedness: An Empirical Study	93
The Second Order Effects of Inflexible Land Taxes Which Tend to Exceed Net Revenue.	95
Probable Production and Price Effects of the 1849-1947 Punjab Land Tax	99
V. SUMMARY AND CONCLUSIONS.	104
BIBLIOGRAPHY.	107
APPENDIX A.	112
APPENDIX B.	133

LIST OF TABLES

Table	Page
I-1 Public Expenditures in India by the East India Company, 1857-1858	15
I-2 Gross Expenditure in India (Central and Provincial) From the Fiscal Year 1861-62 to 1933-34	20
II-1 Land Tax Revenues in the Punjab 1901-1961	50-51
II-2 Sources of Punjab Government Revenue, 1921-22 to 1961-62 . .	53
II-3 Revenue From the Land Tax as Per cent of Total Tax Revenues Collected in the Punjab, 1921-22 to 1939-40 and 1953-54 to 1960-61	54
II-4 Land Tax as a Per cent of Total Revenue and Total Tax Revenue in the Punjab 10 Year Averages 1890-1962	55
II-5 Collection of Selected Taxes as a Proportion of Total Tax Collections in India	57
IV-1 Net Revenue Estimates Compared with One-Third of Value of Gross Product -- 1941	80
IV-2 Annual Estimates of Agricultural Net Revenue in the Punjab, 1913-14 to 1941-42	82
IV-3 Net Revenue Estimates Compared with Tenant Rents -- 1941-42	84
IV-4 Net Revenue Estimates Compared with the Settlement Office's Estimates	86
IV-5 Land Taxes and Net Revenue in 1913-14 Prices	89
IV-6 Size of Farms, 1925-1939	97
IV-7 Cultivating Occupancy of Land, Non-Owners, 1901-36	98
IV-8 Wheat Productivity Trend 1906-07 to 1935-36	101
IV-9 Value of Agricultural Products Per Acre (in 1913-14 Prices) 1913-14 Through 1941-42	102

Table		Page
A-1	Annual Production Data of the Ten Main Crops, 1913-14 to 1941-42	116-117
A-2	Annual Acreage Under Ten Main Crops, 1913-14 to 1941-42	118-119
A-3	1913-14 Harvest Prices for the Ten Main Crops.	120
A-4	Annual Estimated Value of the Ten Main Crops, 1913-14 to 1941-42	121-122
A-5	Annual Estimated Value of Agricultural Output of all Crops From 1913-14 to 1941-42.	123-124
A-6	Annual Harvest Prices of the Ten Main Crops, 1913-14 to 1941-42	125-126
A-7	Annual Estimated Value of Agricultural Output of the Ten Main Crops	127-128
A-8	Weighted Price Index 1913-14 to 1941-42.	129
A-9	Weighted Price Index for 1956-57	130
A-10	Cost Data per Acre	131
A-11	Annual Total Cost of Production of All Crops 1913-14 to 1941-42	132

LIST OF FIGURES

Figure		Page
1	Map of the Punjab.	8
2	Gross Expenditure of Government of India (Central and Provincial) 1861-62 to 1933-34	21
3	Formation of Economic Rent both at the Extensive and Intensive Margins.	63

INTRODUCTION

Economic development has long been a popular issue with economists and sociologists all over the world. It is a particularly pressing goal for countries where development has lagged and where per capita income still remains below \$100 a year. The causes of underdevelopment are properly listed in every textbook on the subject. No such list can be fully comprehensive because no primary cause can be singled out. The economic behavior of the people in any nation is the result of many and often contradictory influences which have shaped the past and will determine their future.

An efficient and well-structured system of taxation is one of many prerequisites on the path of development. Even at a glance at the historical evidence, we notice that the underdeveloped country is also typically anchored to the taxation of land. The most obvious reason for this connection is the fact that only the farmers can provide whatever revenue the state must collect. There seems to be no other practical alternative. Excise taxation and stamp taxes of various types usually come into play as supplementary sources of revenue, but these taxes require already some degree of prior development in order to become significant sources of state revenue.

Why is it then that the land tax has had a retarding influence on development in some countries while it does not seem to have interfered unduly with the progress of others? The current literature does not provide a clear-cut answer to the question, and the present study is

designed to investigate some possibly significant features which may shed light on the causal relationship between land taxation and economic development.

We have selected the Punjab as the area of study for the operation of the land tax. This area is a part of the Indian subcontinent which has had experience with land taxation for over 100 years. While documentation over a long period of history is always spotty and the data frequently raise considerable doubts concerning their reliability, we have sufficient information to illustrate empirically some points which might help to clarify economic issues. Data covering all of India, of course, are more readily available. The sheer size of this area, however, is so large that few generalizations are appropriate. Contradictory trends in different parts of the same country will invariably cancel each other, and most statements are likely not to apply to some large section. The Punjab is only one of these regions, one particularly important for its wheat production and for a fertility of the soil which could be made to produce large harvests if capital in the form of irrigation facilities would be applied on a sufficiently large scale. Since such application has not been forthcoming, an investigation of the retarding influence of the land tax in this area appears to be quite appropriate.

The basic concept of land taxation seems on the surface to be useful for an undeveloped farm country since such taxation is conceptually limited to reducing economic rent without any increase in cost or in price to the consumer. If this concept could have been adhered to in the application, we should expect a much better performance of the economic system of the Punjab over the past century.

We shall show that in practice the land tax proved to be too difficult to assess scientifically and that it gave way to some empirical arrangements crudely designed to collect as much as possible from a recalcitrant peasantry. The result of this breakdown of scientific taxation led to a system which encouraged land-owning capitalists to lend money at high rates of interest to small landholders instead of using their capital to improve irrigation and land use. We shall show also that as a consequence of the snowballing impact of money-lending, the land holdings of a few became so large that their owners were wealthy enough without any concern for the productivity of their land. Incentives for land improvements became too small to compete successfully with easier and more profitable ways of using their money.

In the following chapters we shall first introduce the reader briefly to the economic and historical conditions of the area described as the Punjab from pre-British days to the present. We shall analyze thereafter the impact of the land tax under conditions of pure rent and show how such a system could have been constructed. It will be seen that this theoretical concept could not have been translated successfully into practice under the conditions prevailing in the area at that time. We shall then analyze the alternatives introduced by various assessment methods. We shall investigate the impact of various assessment methods intended to raise the cash required by the state. Assessments shall be compared on both a net revenue and a gross revenue basis; both systems have been claimed to be a base of actual assessments. In practice they have been too difficult to apply in many cases and have given way to a primitive system of letting the assessor determine how much tax he might be able to squeeze out from each

taxpayer. We shall see that such a crude and wholly unscientific method not only was found to lead to abuse but introduced in fact the money-lender as a major factor in the rural scene where more and more small landowners became his prey. Once the land under the impact of taxes and interest charges became the target of nonproductive financiers, the incentive for development of agriculture as a prerequisite of development in all other sectors of business was eliminated. While the dismal result cannot all be attributed to this one source of misuse of economic principles, its contributory effect should not be underestimated.

CHAPTER I

THE PUNJAB AND ITS HISTORY

In order to provide an analytical background for the subsequent chapters, significant characteristics of the Punjab are described below.

Geography

The Punjab between the years 1849-1947 was an area of 99,200 square miles,¹ roughly comparable in size to the state of Wyoming. A roughly triangular plain bounded by mountains on the west and northeast and a desert on the south, the province may be divided into three regions: the hill region lying amid the foothills of the Himalayas and the upper reaches of the Siwaliks, the submountain region at the foot of the Siwalik hills, and the plains region.² The name itself is derived from the Persian words panj, meaning five, and ab, meaning water;³ it is descriptive of one of the three great river systems of northern India -- the Jhelum, Chenab, Ravi, Bias and Sutlej Rivers whose valley plains

¹Gulshan Rai, Agricultural Statistics of the Punjab 1901-02 to 1935-36 (Lahore, 1937), p. 4. The N. W. F. province separated from Punjab in 1901 is excluded.

²M. S. Randhawa and Prem Nath, Farmers of India, I (New Delhi, 1959), p. 26.

³Hugh Kennedy Trevaskis, The Land of the Five Rivers (Oxford, 1928), p. 8.

make up the central Punjab. Rising in the heights of the Himalayas to the northeast, these rivers swell with melting snow in the late spring and rush down through the plains in a southwesterly direction. Many times they leave their old beds to cut new channels, at the same time destroying miles of cultivated fields.⁴ During April and May, these rivers are torrents often miles wide, while during the dry season, they are shallow and sluggish.⁵

The geography of the Punjab as well as the cultural composition of the region and its population was drastically affected in 1947 when the province was partitioned between India and Pakistan. 61,711 square miles of the original 99,200 went to Pakistan along with 15.72 million of the 28.42 million people.⁶ This partition of the Punjab is shown in the map on page eight.

Climate

Generally, the climate of much of the Punjab is similar to that of the southwestern desert areas of the United States. In the winter, temperatures are temperate, with rainfall averaging about three inches; the summers are very hot, with only small relief coming in the form of violent dust or thunderstorms often accompanied by destructive hail. An average of thirteen inches of rainfall, the majority of that received

⁴L. Dudley Stamp, Asia, A Regional and Economic Geography (London, 1950), pp. 286-287.

⁵Ibid., p. 287.

⁶K. C. Ghosh, Economic Resources of India and Pakistan (Revised Edition, Calcutta, 1956), p. 14. Figures derived by subtraction from total figures for the combined Punjab for 1941.

for the entire year, comes during the monsoon season.⁷ Nevertheless, there is considerable variety of climate and rainfall within the province, and the Punjab plains may be divided into three subareas on the basis of the differences: the northeastern or north central plain, lying along the foot of the mountains and having an average annual rainfall of between 20 and 30 inches; the southwestern plain, having an average annual rainfall of between 5 and 10 inches; and the southeastern plain, having an average annual rainfall of between 20 to 30 inches but varying most extensively from year to year.⁸ From December to March, heavy storms move down over the plains of the Punjab, providing a great deal of the rainfall of the northern plains area. A dry season follows the rains brought by these storms and lasts until the first of July, when the southwest monsoon brings heavy downpours of rain which continue intermittently until the middle of September. These monsoon rains provide much of the rainfall of the southeastern part of the Punjab plain.⁹

The People

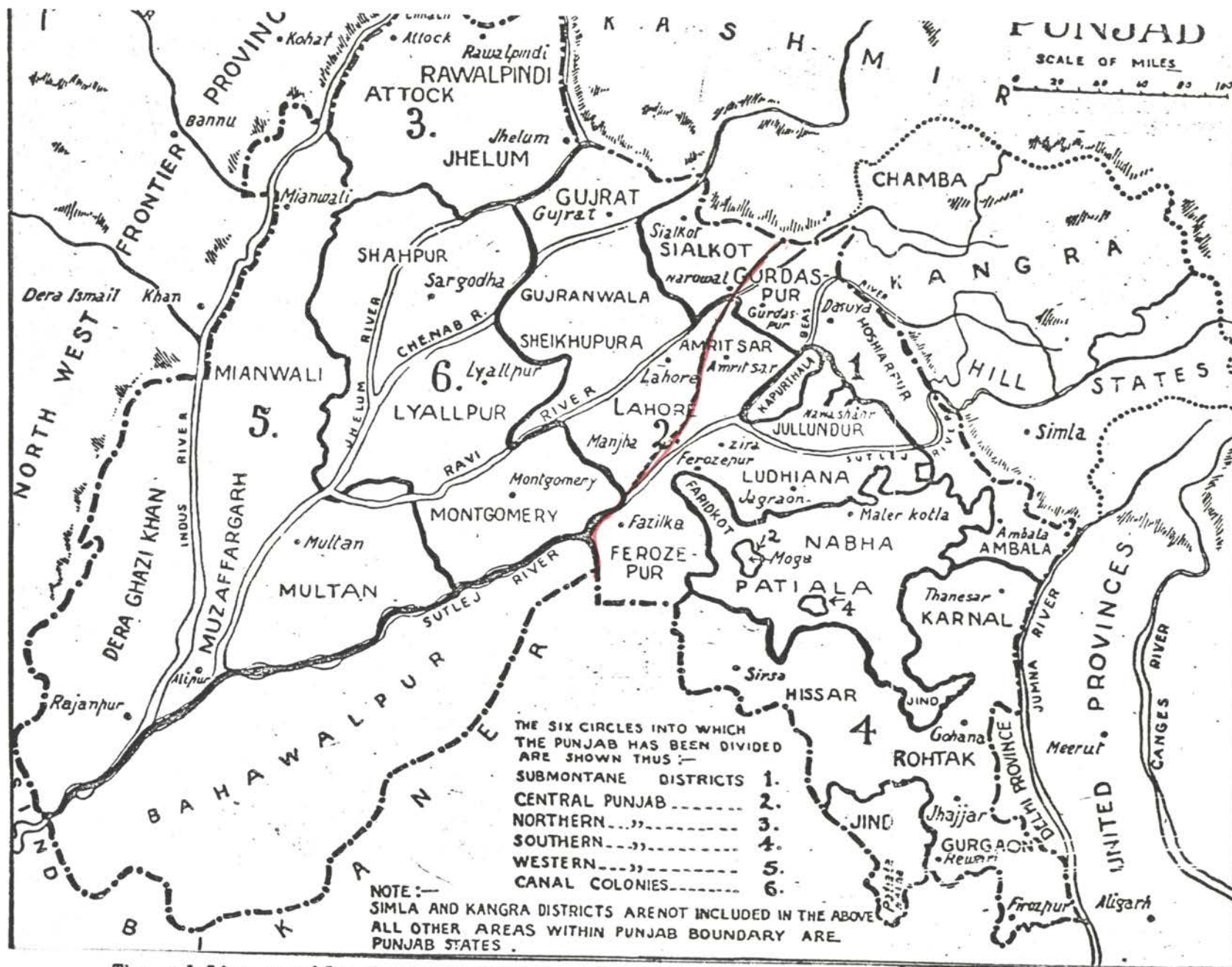
Although there is great diversity in the physical conditions, racial characteristics, customs, living habits, and spoken dialects found in the Punjab, there is a cultural unity among the people brought about by the general livelihood of agriculture and by the tradition of village life.¹⁰ The nature of the construction of the villages depends

⁷Trevaskis, pp. 3-4.

⁸Stamp, pp. 288-289.

⁹Ibid., pp. 194-195.

¹⁰Randhawa and Nath, p. 29.



The red line roughly shows the division of the Punjab between India and Pakistan. Area to the east of this red line is Punjab-India and to its west Punjab-Pakistan. M. Darling, Punjab Peasant in Prosperity and Debt (4th ed., London, 1947), p.20

upon their regional location, but the existence of the villages and their relation to the agrarian way of life had resulted in only thirteen per cent of people living in towns of more than 5,000 inhabitants by 1941, with the balance of the population living in the rural areas.¹¹ The population density in 1941 was 286 people per square mile.¹²

Probably the greatest social force in the lives of the people of the Punjab is religion, because it affects their way of dress and their eating habits, as well as their attitudes. In 1941, prior to the 1947 partition when the predominantly Moslem sections of the population were attached to Pakistan, 16.2 million of the people were Moslems, 7.6 million were Hindus, 3.8 million were Sikhs, and .8 million were others.¹³ Hinduism is the major religion of India, and there have always been more Hindus than Sikhs in the Punjab. Nevertheless, the province is the great center of Sikhism, and about three-fourths of the Sikhs in India live in the Punjab.¹⁴ Despite their religious diversity,

. . . the whole rural population of the Punjab . . . may be regarded, for all administrative purposes, as one people. They are untainted with religious animosities. They live side by side as peaceful cultivators, . . .¹⁵

The cultivators have acted like economic men: they have responded to

¹¹Stamp, p. 293.

¹²Gulshan Rai, Agricultural Statistics of the Punjab 1940-41 to 1943-44 (Lahore, 1945), p. 23.

¹³Dial Das, Vital Statistics of the Punjab 1901 to 1940 (Lahore, 1943), p. 2.

¹⁴Stamp, p. 243.

¹⁵S. S. Thorburn, Musalman and Moneylenders in the Punjab (Edinburgh, 1866), p. 14.

economic incentives.¹⁶ Their responses have occurred despite the prevalence of high levels of illiteracy; the rural section of the region is characterized by the almost complete lack of educational facilities for the masses of the people.

The Economy

A large proportion of the Punjab population obtains its subsistence from the land; agriculture has always been the only major industry.¹⁷ Though the situation has changed considerably in the last one hundred years, the Punjab region's agriculture has traditionally been almost entirely in the hands of peasant proprietors. A substantial portion of the land of the Punjab is still farmed in this way, though the amount of land owned by absentee landlords and farmed by tenants has steadily increased since 1849.¹⁸

While the majority of the people of the Punjab have always gained their subsistence directly from the land, the agricultural orientation affects almost every other important economic factor. For example, cotton mills are the most important industries of two of the three

¹⁶Several studies have demonstrated the willingness of the population to act so as to maximize their incomes. For example, one author found significant acreage responses to changes in the relative prices of agricultural commodities in his study of the Punjab area now belonging to Pakistan: Walter P. Falcon, "Farmer Response to Price in a Subsistence Economy: The Case Study of West Pakistan," American Economic Review, LIV (May, 1964), p. 590. Another study found significant acreage fluctuations related to the absolute and relative prices of cotton: Rai Krishna, "Farm Supply Response in the Punjab (India -- Pakistan), A Study of Cotton" (unpub. Ph. D. dissertation, University of Chicago, 1961), pp. 76-81.

¹⁷Randhawa and Nath, p. 25.

¹⁸See p. 98.

largest cities, Lyallpur and Ludhiana. The third city, Lahore, is an important railway center with thousands of people employed in the transportation of agriculture products.¹⁹

Handloom weaving is second to agriculture in the number of people it employs.²⁰ There are no other relatively important sources of domestic employment; however, a large segment of the male population has traditionally found employment in military service. The Punjab provided the Indian army with almost half of its entire recruitment during the First World War,²¹ and roughly 62 per cent of the total combatant troops thereafter.²²

The lack of data on industrial, commercial and military incomes makes it impossible to compute accurately the Punjab's per capita income for the period covered by the present study. An estimate for 1951, however, following partition, indicates that the per capita income for the Indian section was \$66.²³

Agricultural Characteristics

Many of the farmers must depend upon irrigation for the successful growing of crops because of the variable rainfall and erratic courses of the rivers. Of all the cultivated land of the province in 1942, 51 per

¹⁹Stamp, p. 293.

²⁰Ibid.

²¹C. H. Philips, The Evolution of India and Pakistan (London, 1962), p. 526.

²²Ibid., p. 533.

²³Economic and Statistical Advisor, Government of Punjab (India) State Income of Punjab 1952-53 to 56-57, (Chandigarh, 1962), p. 8.

cent or thirteen million acres were irrigated by means of a network of canals stretching across the land and by wells and tanks.²⁴

There are two main harvests in the Punjab, one in the spring and one in the fall, with the spring crops being sown in October -- November and harvested from the middle of March to the middle of May, and the autumn crops being sown from June to August and harvested from early September to late December.²⁵ Bullocks are usually used for the ploughing, though in areas having sandy soil, camels are used.²⁶ Since soil and climatic conditions vary throughout the province, farming methods vary also depending upon whether irrigation is practiced and upon the nature of the crops being grown.

The major crop of the Punjab has always been wheat, which in 1942 occupied 28 per cent of the whole cultivated area.²⁷ Millet, which is often planted on the same land as the wheat after the spring harvest and reaped in the autumn, is another very important crop because it can grow where lack of water prohibits the growing of wheat. Fifteen per cent of the acreage is used to grow fodder to sustain the large numbers of cattle used for the ploughing; these animals would otherwise be unable to survive because of the lack of natural vegetation in such a dry region.²⁸ The state is the second largest wheat and grain producing area in the Indian Union, third largest for barley and maize, and fourth

²⁴Stamp, p. 289.

²⁵Randhawa and Nath, p. 44.

²⁶Ibid., p. 46.

²⁷Stamp, pp. 291-292.

²⁸Ibid.

for sugar cane and millet.²⁹ Cotton is the most important non-food crop, with eight per cent of the cultivatable land planted in it and most of the American cotton of India is being grown on the Punjab's irrigated lands.³⁰

The Government

The people of the Punjab have been administered by a variety of governments through the centuries,³¹ but the framework of the present system was inaugurated in the sixteenth century under the Mogul rule and maintained by the subsequent governments of the Sikhs, the East India Company, and the British Crown.

The foundation of the Mogul administrative system lay in the division of its territories into provinces, which were . . . sub-divided into subdivisions . . . In areas where communications were difficult a further sub-division was sometimes made. Over each of these areas an officer was appointed who in addition to the primary administrative functions was responsible for seeing that the Emperor's orders were carried into effect.³²

The Moguls established a service of state officials, graded according to a "quasi-military rank,"³³ very similar to the civil servants who have handled the administration of the province ever since. In the rural areas, the maintenance of law and order was entrusted to the tax administration officers.³⁴ The administration by subsequent governments

²⁹Randhawa and Nath, p. 37.

³⁰Stamp, p. 292.

³¹See Chapter II.

³²Trevaskis, pp. 115-116.

³³Ibid., p. 116.

³⁴See Chapter II.

remained a "reproduction of the old Mogul system by which the executive and administrative functions of the central government were delegated through a hierarchy of subordinate officials."³⁵ This dividing of the province into divisions, the subsequent dividing of each division into districts, and the division of each district into tahsils continues to the present time.³⁶

Governmental Objectives

Throughout the history of the Punjab, the objectives of the various governments have depended largely on the conception of each of its responsibilities and purposes. The conception of government held by native governments prior to 1849 was derived from the early Hindu codes of "Dharma Sastra". Basically, these codes describe the government's objectives as being material and spiritual paternalism with nothing outside its scope which would improve the welfare of the people.³⁷ The result was that government engaged in the construction of public works such as storehouses in which food was stored for the poor and for use in time of famine as well as in defense and territorial expansion.³⁸ Taxes were looked upon as the source of items which would generally benefit the populace: "The taxes collected from the subjects must go back to them a thousandfold . . ."³⁹ These ideals were not attained by every

³⁵Trevaskis, p. 219.

³⁶Ibid., p. 220.

³⁷P. J. Thomas, The Growths of Federal Finance in India (London, 1939), p. 5.

³⁸G. B. Malleson, The Rulers of India (Oxford, 1891), p. 186.

³⁹Thomas, p. 6.

ruler at all times,⁴⁰ but they remained the underlying philosophical basis for government and governmental policies.

Native governments were replaced by one controlled by the East India Company when it conquered the Punjab in 1849. Formed in 1600 for the purpose of engaging in commerce, the Company had already been governing a large part of India for almost 100 years through its Government of India. By that time its commercial activities were suspended, and its revenues were primarily coming from taxes levied on India. The Company's net expenditures in the fiscal year 1857-1858 for all India are presented below in Table I-1. These data suggest that the Company-operated government made sure of the maintenance of the Company's position as administrator of the country.

TABLE I-1

PUBLIC EXPENDITURES IN INDIA BY EAST INDIA COMPANY, 1857-1858

Item	Millions of Rupees ^a (1)	Per cent of Total ^b (2)
Defense	167	63.5
Police, law, justice	26	9.9
Education	2	.8
General Administration	30	11.4
Health	1	.4
Agriculture	0	----
Civil works	37	14.1

^aThomas, p. 9.

^bPer cent computed from column 1.

⁴⁰See Chapter II.

The British government assumed direct control of the government of India in 1858. A representative of the Crown, the governor-general, became the chief administrative officer. He was responsible to a member of the British cabinet, the Secretary of State for India.⁴¹

The official British policy in 1858 was stated in these flowery terms:

When, by the blessing of Providence, internal tranquility shall be restored, it is our earnest desire to stimulate the peaceful industry of India, to promote works of public utility and improvement, and to administer its government for the benefit of all our subjects resident therein. In their prosperity will be our strength; in their contentment our security, and in their gratitude our best reward. And may the God of all power grant to us, and to those in authority under us, strength to carry out these our wishes for the good of our people.⁴²

Similar pronouncements regarding the obtaining of prosperity and security for the residents of India were stated as the guide to official policy. Lord Curzon in 1905 expressed his views as Viceroy regarding the Indian peasant who represented a majority of the population in these terms: "He has been in the background of every policy for which I have been responsible, of every surplus of which I have assisted in the disposition . . . he should be the first and final objective of every viceroy's regard . . ."⁴³ James Wilson, the Crown's first finance minister, said of the Crown's objectives: "Let cultivation be extended and improved ever so much, there is no fear of the want of a market."⁴⁴

⁴¹Thomas, p. 91.

⁴²Philips, p. 11.

⁴³Ibid., p. 659.

⁴⁴Ibid., p. 570.

The government policy of how this was to be accomplished appears to have emphasized non-interference by the government in the economic affairs of the populace:

. . . even in the worst conceivable emergency [such as famines] so long as trade is free to follow its normal course, we should do far more harm than good by attempting to interfere.⁴⁵

A more specific major economic objective of many of the policy-makers than the welfare of the people, and one in line with the governmental policy on non-interference, was the development of India as a market for foreign goods and as a supplier of raw materials. Lamb feels this was attained

. . . by the combination of an active state policy in the fields of transport, communication, and irrigation development with a passive state policy in the name of laissez faire with respect to industrial development . . . Government passivity took two principal forms: absence of government aid to industry, and absence of any direct effort to alter the caste basis of India's social structure.⁴⁶

The following resolution of the House of Commons regarding cotton duties, July 10, 1877, would appear to support these contentions:

Resolved, That, in the opinion of this House, the Duties now levied upon Cotton Manufactures imported into India, being protective in their nature, are contrary to sound commercial policy, and ought to be repealed without delay, as soon as the financial condition of India will permit.⁴⁷

⁴⁵Extract from "Resolution of the Government of India," No. 33, 1897; quoted in B. M. Bhatia, Famines in India (New York, 1963), p. 240.

⁴⁶Helen B. Lamb, "The 'State' and Economic Development in India," Economic Growth: Brazil, India, Japan, Simon Kuznet, Wilbert E. Moore, and Joseph J. Spengler, eds. (Durham, North Carolina, 1935), pp. 478-479; See also George D. Bearce, British Attitude Towards India (Oxford, 1961), p. 60.

⁴⁷Philips, p. 600.

Thus, it appears that the Company and Crown governments relied on the doctrine of laissez faire to arrange for the "sound commercial policies," which would allow both for foreign manufactures to be sold in the country and an improvement of the well-being of its population. Writers such as Trevaskis⁴⁸ and Anstey⁴⁹ have interpreted the actions of the Company and Crown governments similarly. An examination of the source of all India government revenues presented in Table II-5 lends support to these views: taxes which might influence domestic production and international trade by directly raising costs, such as customs duties, sales taxes, and other excises, were virtually non-existent between 1849 and 1910.

The actions of many government officials have suggested to several writers that other objectives may have existed. First, there was the consolidation of the Empire. Gopal points out that Lord Lytton, Viceroy from 1876 to 1881, could say that the appeasement of the Indian aristocracy, even if it meant oppression of the peasantry, should be the policy of India since the peasant would always follow his native chiefs:

I am convinced that the fundamental political mistake of able and experienced Indian officials is a belief that we can hold India securely by what they call good government; that is to say, by improving the conditions of the ryot, strictly administering justice, spending immense sums on irrigation works, etc. Politically speaking, the Indian peasant is an inert mass. If it ever moves at all, it will move in obedience, not to its British benefactors, but to its native chiefs and princes, however tyrannical they may be . . . To secure completely and efficiently utilize the Indian aristocracy is, I am convinced, the most important problem

⁴⁸Trevaskis, pp. 343-344.

⁴⁹Vera Anstey, "Economic Development," Modern India and the West, Ed. L. S. S. O'Malley (London, 1941) p. 269.

now before us.⁵⁰

Second, the expansion of the Empire was also a burden for all the members. Smith notes that the Indian government was required to pay the expenses of Indian troops used in wars outside of India.⁵¹ Fourteen wars or military "expeditions" took place between the advent of Crown rule and the South African War of 1902.⁵² The Indian government was even required to pay the expenses of British soldiers in Britain who were available for duty in India if needed.⁵³

The following table presents gross expenditures of the central and provincial governments of India decennially 1861-1931, plus 1933-34.⁵⁴ Examination of the pattern of expenditures suggests that government expenditures conformed to government objectives, particularly those regarding laissez faire and the maintenance of the Empire; military and administrative expenses were relatively high, and there is nothing to indicate governmental attempts to affect economic activity. However, government subsidies appear to have been given to irrigation and railroad projects. Over a period of time there appears to have been increased emphasis on education, medicine, sanitation, and famine relief expenditures; there was also an apparent decline in the relative importance of defense and increased spending for certain forms of public works. The apparent emphasis on economic non-interference and the

⁵⁰Ram Gopal, British Rule in India (New York, 1963), p. 41.

⁵¹William Roy Smith, Nationalism and Reform in India (New Haven, 1938), p. 182.

⁵²Ibid.

⁵³Ibid.

⁵⁴For graphical presentation of these expenditures, see page 21.

TABLE I-2

GROSS EXPENDITURE OF THE GOVERNMENT IN INDIA (CENTRAL & PROVINCIAL) FROM THE FISCAL YEAR 1861-62 TO 1933-34 (CLASSIFIED IN MILLIONS OF RUPEES)^a

Heads of Expenditure	1861- 1862	1871- 1872	1881- 1882	1891- 1892	1901- 1902	1911- 1912	1921- 1922	1931- 1932	1933- 1934
1. Defense	169.5	162.5	203.5	235.1	258.3	313.5	778.8	558.9	497.5
2. Law and Order									
Law and Justice	19.0	29.1	32.3	37.4	43.9	57.4	78.0	81.8	77.8
Police	21.5	22.2	25.5	38.7	40.4	69.0	128.4	134.4	129.1
Total	40.5	51.3	57.8	76.1	84.3	126.4	206.4	216.2	206.9
3. Civil Administration	59.9	71.1	84.0	94.8	110.9	143.5	260.4	290.9	264.9
4. Debt Services	66.2	76.9	67.5	101.0	111.6	148.3	359.7	621.0	552.0
5. Social									
Education	3.4	6.3	10.8	14.2	10.7	30.3	90.0	128.3	120.5
Health	2.4	5.0	6.8	8.8	9.1	17.3	47.3	58.2	54.8
Famine Relief, etc.	---	---	15.7	12.7	13.3	15.0	13.4	3.0	.5
Ecclesiastical	1.5	1.6	1.6	1.6	1.7	1.9	3.0	3.0	2.9
Total	7.3	12.9	34.9	37.3	34.8	64.5	153.7	192.5	178.7
6. Social Overheads									
Railways	---	---	105.2	157.4	79.9	81.6	90.3	18.6	17.4
Irrigation	---	---	13.2	18.4	21.3	29.9	62.4	43.6	49.7
Others	61.2	58.8	85.7	106.7	105.6	174.4	344.4	312.1	299.9
Total	61.2	58.8	204.1	282.5	206.8	285.9	497.1	374.3	367.0
7. Miscellaneous	36.5	52.6	69.0	59.9	88.4	101.3	135.3	133.4	176.4
Total	441.1	486.1	720.8	886.7	895.1	1183.4	2391.4	2387.2	2243.4

^aG. Findlay Shirras, Science of Public Finance II, (3rd ed., London, 1936), pp. 1076-1077.

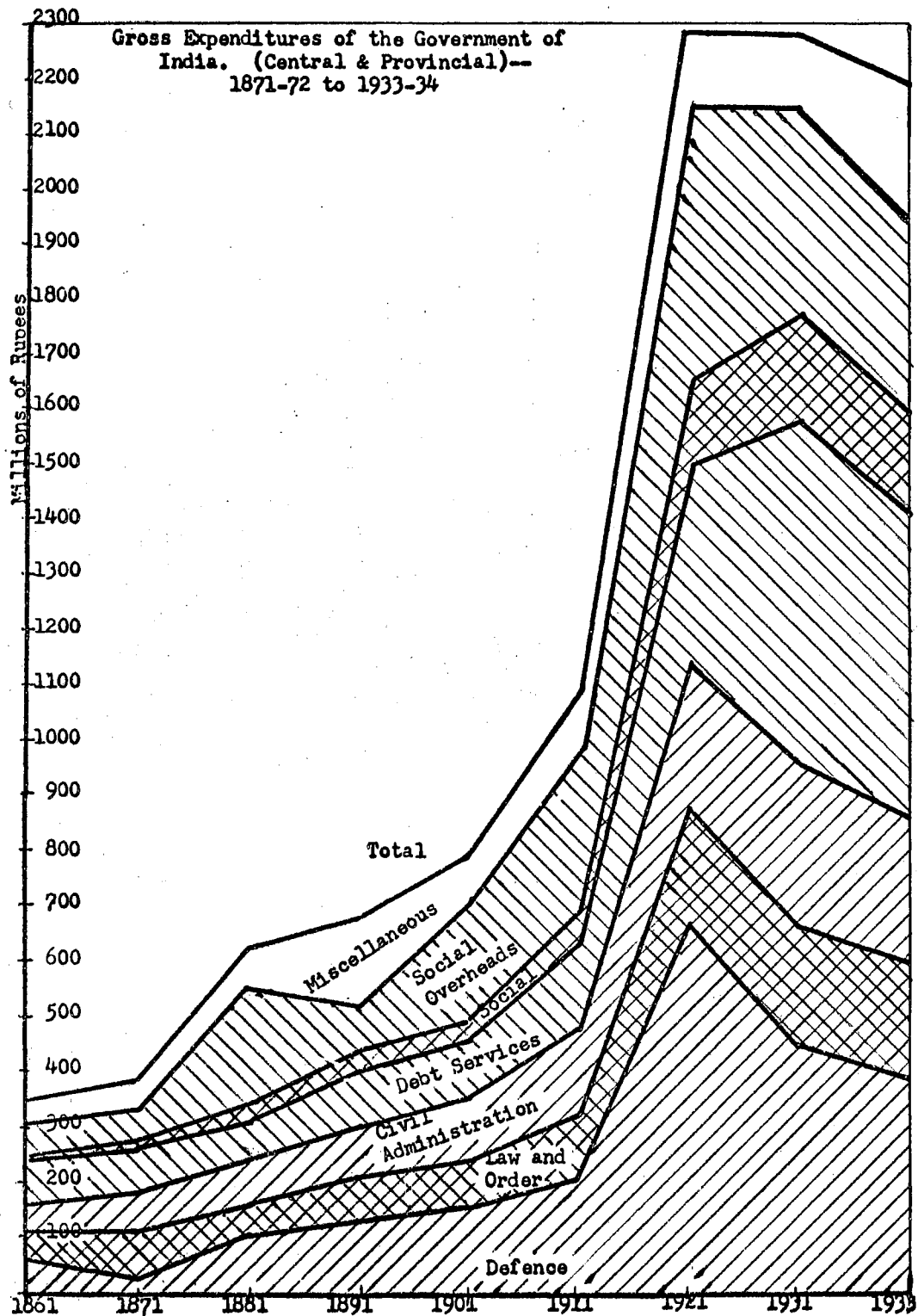


Fig. 2

maintenance of a dominant political position has led Barbara Ward to hold that the main purpose of the Crown's administrators "was to give law and order, administer justice, secure the land revenue, and give the mass of people -- overwhelmingly in the countryside -- fair and consistent government."⁵⁵

The overall result appears to have been a general lack of governmental action designed to influence the level and character of economic activity. This policy of laissez faire existed until the advent of World War II. At that time governmental attempts were made to promote the industrialization of India. In 1945, the Crown government of India announced that it had "reached a stage of their planning of industrial development when they consider it would be in the public interest to make an announcement of the conclusions reached by them on various aspects of policy."⁵⁶ Then they specified that the government would make plans to promote economic activity in the country. No comprehensive plans were ever put into effect as the Crown government withdrew shortly thereafter, in 1947.

Intergovernmental Relations: 1849-1947

Prior to 1870, all governmental functions were carried out by the central government. The Punjab Government acted as an administrative unit. All revenues collected in the Punjab were sent directly to the central government. In 1870, the state was assigned responsibility for administering and determining the appropriate scale of spending on

⁵⁵Barbara Ward, India and the West (New York, 1961), p. 126.

⁵⁶Phillips, p. 698.

jails, police, education, medical services, civic buildings and miscellaneous public improvements. It was given any receipts which it might receive from the administration of these functions plus a lump sum grant from the central government. All tax revenues collected in the state continued to go directly to the central government. The state, however, was given permission to levy a surcharge on the land tax if it did not have enough revenue. Any state deficits were met by short-term borrowing from the central government. In 1878, the State was assigned additional duties of administering law and justice, famine relief, and local railways. It also received all receipts from these functions.⁵⁷

In 1882 the fixed grants were replaced by a sharing system under which the Punjab state government received a fixed proportion of all tax receipts collected in the Punjab from the land, forests, income, stamps, and excises. The state assumed the responsibility for collecting these taxes. The central government, however, continued to set the rates for the land tax.

The sharing system was ended in 1921, and the state was given all the revenues collected within its borders from land, excise, stamps, forests and irrigation charges. The rates were also to be set by the state government. The State was also allowed to go into debt on its own account. This relationship between central and provincial governments continued until August 15, 1947; at that time the Crown government withdrew, but it left behind institutions which continue to the present time.

⁵⁷See Page 42.

CHAPTER II

THE PUNJAB LAND TAXES

Whether native or imposed by conquerors and whatever their basic purposes and aims, governments of the Punjab have needed revenue and have found in the agricultural sector their major tax revenue source. These governments have taxed the land, and the owners of the land have paid in one way or another.

Pre-1849 Land Taxes

The traditional institutional guides of the Punjab, the laws of Manu,¹ require the farmer to render unto the state a share of his agricultural production. The laws specify that the State's share is to vary from one-sixth to one-twelfth, depending on the richness of the soil.² It is probable that the rulers of the area have exercised their traditional right to part of the produce of the land since time immemorial when the laws were laid down. However, a search of the literature

¹Manu is the "supposed author of a code known as laws of Manu, which is still the highest authority in Indian law courts. Its date is uncertain, but in its present metrical form it is post-Budhistic: Funk and Wagnalls New Standard Dictionary of the English Language (New York, 1963, p. 1509.

²Taxation Enquiry Committee, Report on the Indian Taxation Committee 1924-25 (Calcutta, 1926), p. 40.

reveals that the first recorded systematic attempt to assess a land tax in India was made by Sher Shah in the 1540's. His taxes applied to all of India, including the Punjab. He had the land measured and average production per unit of land ascertained. He divided the land into three classes according to its fertility. The total tax assessment of a region was based on intensive scrutiny on the average production in certain test areas from each fertility class of land owned.³ In 1556, before Sher Shah was able to complete his land tax reforms, he was displaced by the Mogul king, Akbar. Akbar, however, adopted Sher Shah's tax system and developed it further.

The Mogul Period.

Under Akbar, in the 1580's, as conditions became more settled, the land was surveyed and classified into five categories according to type and condition of the soil to insure some degree of equality of payment in proportion to the productive qualities of the land. Estimated yields were fixed for each crop on each class of soil based on the average yield of the previous ten years. The State then claimed one-third of the estimated production. It was payable either in kind or cash.⁴ The total levy on the agricultural production of each area from each type of soil was then allotted to individual landowners on the basis of the proportion of the area's total land in each type of soil which they owned. The tax was not, however, just a rigid liability equal to some proportion of an estimate of long-run average production; it was also flexible: when crops failed, taxes were reduced or remitted, thereby

³Malleon, p. 185.

⁴Kalikinkar Datta, R. C. Majumdar, and H. C. Raychaudhuri, An Advanced History of India (London, 1948), p. 561

making the revenue system elastic,⁵ a practice that was to be stopped in 1849.⁶

To determine the money value of land produce for purposes of cash payment, statements of prices for the nineteen years preceding the current assessment were ascertained from the village headman, and an average price of each type of crop was computed. The long-run average of agricultural yields per unit of land was then multiplied by the amount of land in each type of crop and the average price of the crop. One-third of the result would be the cash tax payment required in each area.⁷ The estimates of total money taxes were assigned to individuals based on the proportion of the total area which they owned which had each crop and each type of soil. The individual landowner would then choose between payment in kind or this amount of cash payment.

For the purpose of revenue collection the country was divided into provinces which again were divided into districts; each district in turn was composed of a number of Paraganas,⁸ each being composed of several villages.⁹ The tax collector was the head of the tax administration in each district; he was assisted by measurers, who prepared district and village crop statistics, and by Quanungos¹⁰ who kept

⁵Smith, p. 174.

⁶Thorburn, p. 48.

⁷Malleson, p. 187.

⁸An administrative unit.

⁹Datta, Majumdar, and Raychaudhuri, p. 562.

¹⁰An official superior to the village accountant.

records of revenue payable by the villages as well as a treasurer.¹¹ In addition, each village had its own accountant to keep revenue records, and village headmen to recover the appropriate amount of taxes in cash or kind from individuals and remit it to the treasurer.¹² This system, set up along the traditional lines of village government organization, remains virtually intact to this day.

Akbar must have been dissatisfied with the results, for he temporarily tried a new system for the administration of the land revenue.¹³ The country was marked out in parcels, each to yield twenty-five thousand rupees of tax revenues. Each part was entrusted to a collector called a Korori. But this division of the land was arbitrary, and, according to Malleeson, caused confusion.¹⁴ After a trial, this artificial division was abandoned and the previous system reintroduced.¹⁵ The Mogul Empire continued after Akbar's death in 1605, and it retained his tax system intact until its demise at the end of the eighteenth century.

Economic development under the Moguls' land tax. It appears that India did develop economically when a land tax was used to provide government revenue. During the early years of the Mogul Empire, a

¹¹Datta, Majumdar, and Raychaudhuri, p. 562.

¹²Ibid.

¹³Malleeson, p. 187.

¹⁴Ibid., p. 188

¹⁵Ibid.

great part of the territories of India remained uncultivated.¹⁶ Akbar attributed this situation to the taxes which lowered the return to cultivation.¹⁷ He examined those districts having excessive land available for cultivation and appointed honest and intelligent officers possessing widely discretionary powers to bring it into production. They offered tax concessions and advanced capital to the cultivators to induce them to bring the land into production.¹⁸ This scheme was continued successfully throughout the Mogul reign. According to several authors, the result was that agricultural conditions improved and the Indian economy attained a high degree of prosperity.¹⁹ Pyrard, a seventeenth-century Portugese writer who spent ten years visiting India, described agricultural conditions:

In short, I find no country in all the East Indies [India] more abundantly supplied with all things needful for food, with the riches of nature and art; and were not the navigation so dangerous, it would be the fairest, most pleasant, fertile, and profitable in the whole world.²⁰

During the period of the Mogul Empire, and with the use of the land tax developed by Akbar and retained by his followers, the Indian economy developed:

Indian society of that period [the second half of the eighteenth century] was far more highly developed than

¹⁶Ibid., p. 121.

¹⁷Ibid.

¹⁸Ibid.

¹⁹Ibid., p. 126; Vera Anstey, The Economic Development of India (4th ed., London, 1957), pp. 4-5; John Strachey, The End of an Empire (New York, 1962), p. 12.

²⁰A. V. Williams Jackson, ed., History of India, II (London, 1907), p. 289.

the local American empires encountered by the Spaniards: indeed, in some respects it was more rather than less developed than the contemporary European states with which it collided. It is true that India was relatively backward in certain respects which turned out to be decisive. On the other hand Indian industrial and commercial techniques in, for example, the production of textiles and in some respects in banking and public finance, were ahead of Europe. In any case, and however we may evaluate the relative development of the two contemporary civilizations, the Indian and the European, when they collided in the sixteenth, seventeenth and eighteenth centuries, there was certainly no yawning gap between them, such as existed in the American and Spanish examples.²¹

Agricultural products were not only abundantly available for domestic consumption, but were also exported to other countries and used to support rapidly growing urban populations engaged in trade and manufacturing.²² Thus, not only did a prosperous agricultural sector develop, all the while subject to a land tax, but it helped the development of other sectors of the economy.

The continuance of what may be called "Eastern Economics" is felt to be the more strange because...the economic condition of India was relatively advanced, and Indian methods of production and of industrial and commercial organization could stand comparison with those in vogue in any other part of the world.²³

The Punjab Land tax under the Sikhs

The next changes in the tax system of the Punjab occurred when the Sikhs under Ranjit Singh overthrew the Mogul Empire at the end of the eighteenth century.²⁴ Under the Sikhs, the Punjab was divided into 59

²¹Strachey, p. 12.

²²Percival Griffiths, The British Impact on India (London, 1952), pp. 361-362, and p. 389.

²³Anstey, The Economic Development of India, pp. 4-5.

²⁴Khushwant Singh, A History of the Sikhs, I (Princeton, 1963), p. 202; Trevaskis, pp. 181-182.

tax collecting administrative units. These units were administered either singly or in groups by government revenue administrators called jagirdars.²⁵ Generally the State claimed from one-third to two-fifths of the crops produced in a given area, though land with special advantages paid as much as one-half of the produce.²⁶ This form of taxation differed from that of the Mogul in that it was based on actual production for the time period which the tax covered, not on a moving average of yields or prices.

Government crop appraisers estimated each area's yield per acre and approximate acreage under each crop at the harvest time. Then some proportion of the estimated production was to be paid in taxes. Each individual landowner was required to contribute a share of the area's total assessment for each crop proportionate to his share of the total land engaged in the cultivation of that crop. For the most part, owners cultivated their own land. The Sikh government discouraged the landlord-tenant relationship, and the returns to absentee landowners were small. Payment of the tax was in cash or kind, depending on the type of crop grown.

Where cash payment was required or accepted as an alternative, the tax assessment of the government was advanced at harvest time by some local contractors or by the village moneylenders who in turn were paid after the harvest by the cultivators according to their share of the

²⁵Thorburn, p. 44.

²⁶Trevaskis, p. 181.

total area in that form of cultivation.²⁷ The relations between the peasant debtors and these lenders were strictly regulated through the local executive officer with the view of attaining agricultural efficiency under the Moguls and under the Sikhs who followed them:

Capital was required to finance agriculture, and would only be forthcoming if properly recompensed. Hence the debtor must be compelled to repay principal with interest... The moneylender was allowed to make as much profit as and no more than would induce him to continue to finance the peasant. For where the moneylender would not come forward, the State itself had to step into the breach and advance loans to the agriculturist rather than allow him to succumb entirely.²⁸

In case of dispute between the cultivator and the moneylender, private arbitration was resorted to. If matters could not be settled amicably, both parties went to an appropriate administrator who adjudicated the dispute by examining the moneylender's books and striking off any unreasonable interest as well as determining what cattle and other saleable goods the debtor owned. In any case, the cultivator was always left enough to carry on his agricultural operation.²⁹

Checks against oppressive taxation.

The land tax was heavy during the Sikh period because it was mostly a period of attempted territorial expansion. There were, however, certain checks which prevented the tax system from being too oppressive. First, the actions of the initial leader of the Sikhs, Ranjit Singh, prevented this. He ruled Punjab from 1799 to 1839, and as an administrator, he was extremely skillful in keeping his people under control. He made frequent tours through the region. During these tours he

²⁷Thorburn, p. 44.

²⁸Trevaskis, p. 309.

²⁹Ibid., p. 188

listened to complaints from the people. Officials of areas where complaints were numerous were removed. At court also he would receive individual appeals. His presence acted as a check against any would-be rapacity of the distant governors.³⁰

Ranjit Singh's concern for the welfare of the peasantry was always a very personal one. In a message to Lehna Singh Majithia on the latter's assignment to collect the revenue, the Maharaja [Ranjit Singh] wrote:

"Take care that all residents of the country are happy and in the cradle of comfort and ease...See that all the Zamindars [farmers] have prosperous houses and households... Realize the revenue with a sweet tongue".³¹

A second check was that the land was plentiful, and cultivators of it scarce.³² The scarcity of cultivators prevented oppression because if the cultivators were taxed too heavily, they could migrate to other areas.

In case of sustained oppression, the peasants could check the abuses of their rulers by simply getting up and moving from one realm to another. To most rulers the threat of such a flight was a very serious matter, since their [tax] revenues depended on the extent to which their land was occupied.³³

Third, in periods of droughts both the cultivators and the Sikh government suffered since the cultivators' tax liability was correspondingly reduced.³⁴ And fourth, every village sent recruits to the Sikh army, and those men remitted savings from their military pay to

³⁰Punjab Administration Report 1852, para. 28; cited in Romesh Dutt, The Economic History of India (London, 1956), p. 83.

³¹Singh, p. 293.

³²Thorburn, p. 46.

³³Daniel and Alice Thorner, Land and Labour in India (Bombay, 1962) p. 109.

³⁴Thorburn, p. 12; Trevaskis, p. 188.

their homes. Many of the villagers thus were able to pay part of their land tax from military pay.³⁵

Increase of cultivated area under the Sikh rule.

Even though not all the area officials of the Punjab region were alike so far as administrative capabilities and desire for the development of the agricultural sectors were concerned, some far-sighted officials realized that more revenue could be obtained from a peasantry that was becoming ever more prosperous. Many attempts were made to improve the productivity of the land. In one example, in a rainless district the governor offered positive incentives to encourage the sinking and repairing of wells; a person who constructed a number of wells and settled cultivators on the land irrigated by those wells was exempted from the payment of land taxes either on the whole area irrigated by one well or part of the area irrigated by each well. Furthermore, the government taxation administrative machinery itself was well-gearred to accomplish agricultural development. The Governor's subordinate officers were encouraged to introduce moneylenders who lent money to the cultivators for their seed and other agricultural needs and stood surety for the repayment of the loan.³⁶ As a result of these programs some hundreds of wells were sunk in his time as the people combined to dig new and restore the old canals.³⁷ With this program, the Governor was able to remit over two million rupees annually to the Punjab Government besides making a small fortune for himself, and

³⁵The Secretary of State for India in Council, The Imperial Gazetteer of India, XX (Oxford, 1908), p. 339.

³⁶Trevaskis, p. 186.

³⁷Ibid.

developing the agricultural sector of the area under his administration.³⁸

Similar experiences occurred in other districts. The result was that generally the entire Punjab region prospered under the Sikh rule. During that time, according to the Imperial Gazetteer of India, money circulated freely, manufactures and commodities were in brisk demand, and commerce flourished despite the burden of taxation.³⁹

As Ranjit Singh's grip over the administration of the Punjab land taxes grew weaker in the later days of his rule, the situation deteriorated. The land tax was raised, and there were numerous cases in which the level of taxes was set at the upper limit of the ability of the landowners to pay (determined by how much they would pay before migrating to other areas) or at as high a rate as would be possible without causing an insurrection. It has been suggested that, during these times, the collectors sometimes took as much as they could from the peasants and paid as little into the treasury as possible.⁴⁰

The Punjab Land Tax System: 1849-1947

The country passed from Sikh control in 1849 when the East India Company's Government of India conquered the Punjab. The British Crown then took over the government in 1858. In order to attain their

³⁸Ibid., p. 187.

³⁹The Secretary of State for India in Council, p. 339.

⁴⁰Thorburn, p. 44.

objectives, these governments of India continued the earlier practices of taxing the land, although there were some modifications in the way in which the tax was administered. The present form of the tax was developed during this period, the hundred years after 1849.

The process by which the Punjab land tax was levied was called the "settlement." Basically, certain administrators known as settlement officers determined the total tax liability of each district in the region and then proportionally assigned shares of the total tax liability to the landowners of the area on the basis of the amount and the productivity classification of the land owned. The amount of payment due then remained a constant annual liability of the land until the next settlement, whether the land was used or not.⁴¹

The initial land tax settlement system used in the Punjab was supposed to be based on instructions set down in 1833 in Directions for Settlement Officers, by James Thomason.⁴² Written for neighboring states and made applicable to the Punjab, these initial directions required that the government should not demand more than two-thirds of what it determined to be the "net revenue" of agricultural land. Net revenue meant the surplus which a farm would yield after deductions of its expenses of cultivation, including a normal return on capital and the wages of labor. Net revenue is also referred to in the literature as "net assets" and as net produce.⁴³ The level of taxation in each

⁴¹Frank Noyce, "Land Revenue Administration and Tenures in British India," Monthly Bulletin of Economic and Social Science, XLVII (November, 1914), pp. 130-133.

⁴²B. H. Baden-Powell, The Land-Systems of British India, II (Oxford, 1892), p. 533.

⁴³It also meets the definition of economic rent in the Ricardian sense of the return to land.

area required to yield two-thirds of an area's annual net revenue was initially assumed to be one-third of the value of each area's gross agricultural production;⁴⁴ no studies or descriptions were found in the literature which presented the reasoning behind such an assumption or described how this figure was derived.

Under the Directions for Settlement Officers, the settlement officers -- British nationals, initially on temporary leave from other administrative positions with the East India Company's government of India⁴⁵ -- were to make use of the "general considerations" method for determining the size of the present and future tax base of the land in each area; they were to examine the fiscal history of the district and then assign a total tax liability which they thought was fair for each area by considering its soil, climate, location, and past history of taxation and property. This total sum usually represented the average of any known past collections, lowered or raised until the amount appeared to be both collectable and politically feasible. If, in the past, collections had been realized with difficulty, the assessments were to be lowered as being greater than one-third of the value of production.

If agricultural prices and thus the value of production had risen and the assessors thought that the existing taxes fell below the one-third level, the area's total tax assessment was to be raised.⁴⁶ The

⁴⁴Trevaskis, p. 261.

⁴⁵Thorburn, p. 46.

⁴⁶Trevaskis, p. 260.

settlement officers were cautioned in the Directions for Settlement Officers not to place sole reliance on the absolute amount of the net assets of the current or the past years as they would not afford an accurate guide to net revenue for the years to come in view of increases expected from continual development in the agricultural sector which were anticipated as a result of law and order, peace and the presence of a government dedicated to laissez faire.⁴⁷

Once the area's total tax liability was determined, it was then to be broken into sub-totals on the basis of the various types of land that the settlement officers observed in each area; the land was to be divided according to kinds of soil and according to whether the land was irrigated or unirrigated. The differences in taxes between types of land in each area were to be worked out according to what the settlement officer thought reasonable. In some cases, the results were actually tested against the crude produce estimates from experimental reappings of given acres.⁴⁸ The total tax assessed against each type of land in each area was then to be assigned to individual owners of each type of land relative to the proportion of the area's land of each type which they owned; it was to be a constant annual charge required of landowners if they desired to retain possession of the land until the next settlement occurred.⁴⁹

⁴⁷B. H. Baden-Powell, A Short Account of Land Revenue and Its Administration in British India (London, 1892), p. 9.

⁴⁸Trevaskis, p. 261.

⁴⁹Baden-Powell, A Short Account of Land Revenue and Its Administration in British India, p. 164.

Initially, the settlement procedures did not reach even to the levels of sophistication described above, although the same percentage of estimated total area production was used. Basically, the settlement officers estimated the area's real ability to produce by examining the land and then applying the existing prices for agricultural production in the area in order to get an estimate of the total value of the area's production. Despite the instructions in Directions for Settlement Officers, these methods were little affected by each area's past experiences because of the complete absence of data or settlement officers familiar with the areas. Once permanent parties of settlement officers were formed, the settlement officers returned to areas every decade or so. Then again, they would resurvey and reclassify the land of the area, examine the area's past records of prices and production, and establish new levels of taxes which were to apply in the years ahead.^{50,51}

⁵⁰Baden-Powell, Land Systems of British India, II, p. 577.

⁵¹Carrying on a tradition which had begun long before the British arrival, the cost of tax administration at the village level was not reimbursed from the initial tax collections but was left to be met from additional land taxes. Initially in 1854, a tax of three and five-eighths per cent of the land tax went to the village revenue accountants as remuneration for their services: James M. Douie, Punjab Settlement Manual (5th ed., Lahore, 1960), pp. 49-50. Another tax of five per cent of the basic land tax went to the village headman; he was responsible for collecting land taxes and remitting the amount to the treasury: Frank Noyce, "Land Revenue Administration and Tenures in British India", Monthly Bulletin of Economic and Social Intelligence, XLVII:xii (December, 1914), pp. 92-93. Furthermore, throughout the period of time 1849-1946, it was the usual practice to levy an additional tax of one per cent of the basic tax, which was to be used by the local government to maintain the roads. Educational and postal taxes at the rate of one per cent and one-half per cent, respectively, were subsequently added in 1855: Douie, Appendix I, p. i.

Organizational structure of the Punjab land tax administration.

The special staff of settlement officers, assistant settlement officers and various subordinates moved from district to district assessing the land tax, with their responsibilities and experiences confined to settlement.⁵² The actual unit of tax administration was the village, with an official "headman" called a Lambardar. He was an hereditary officer, and among his duties was the collection of the land taxes.⁵³ More important than the village headman in terms of the land tax system was the village accountant, the Patwari. His office was also usually hereditary; his main functions were to keep the village accounts of revenue payment as well as maintain the village land maps, field registers, and records of land rights. He also made inspections of the fields to obtain statistical information of crops, wells, cattle, and other particulars required from time to time. Reporting unusual occurrences such as epidemics, cattle disease and damages done by hail or locusts also fell within the purview of his duty.⁵⁴ His direct superior in rank was the revenue inspector whose duty was to supervise the work of a number of such accountants and check their accounts.⁵⁵

Three or more revenue inspectors formed a unit of administration

⁵²Frank Noyce, "Land Revenue Administration and Tenures in British India", p. 92.

⁵³Ibid., pp. 92-93.

⁵⁴Ibid.

⁵⁵Ibid., p. 94.

called a tahsil; it was under the charge of a tahsildar. The area of a tahsil usually varied from 400 to 600 square miles. The tahsildar had under him a number of accountants and treasury clerks for the purpose of receiving land revenue and sending it to the district treasury. He also supervised revenue inspectors and performed extra duties like assessing other forms of taxes.⁵⁶

A number of tahsils made up a district which was headed by a deputy commissioner. This was usually the lowest administrative position held by British nationals. In some cases, Indians filled these positions. From this administrative level upward, the proportion of Indians involved decreased rapidly. The duties of the deputy commissioner were:

Apart from the duties immediately connected with the assessment and collection of land revenue and with the village establishments, the Collector [Deputy Commissioner] is concerned with all matters affecting the conditions of the peasantry, he supervises the compilation of the periodical returns of produce and prices, he adjudicates in several provinces on rent and other disputes between landlord and tenant and he makes loans on behalf of the Government for agricultural purposes. The collector [Deputy Commissioner] has also charge of the local administration of excise, income tax, stamp duty and other sources of revenue and he is responsible for the management of the district treasury into which the revenue and other public receipts are paid and from which all local disbursements are made.⁵⁷

In other words, his duties affected the taxation and well-being of the people.

Usually five districts made up a division under the superintendence of a commissioner who reported on tax matters directly to the Board of Revenue at the provincial government headquarters. Land tax assessment

⁵⁶Ibid.

⁵⁷Ibid., pp. 94-95

in the division was conducted under his supervision so that the indigenous settlement staffs were directed by this commissioner. Above the Board of Revenue was the provincial government headed by a lieutenant governor or governor who received orders from the Viceroy, the chief executive of India.

Changes in the initial settlement procedures. In 1855 the original government demand of two-thirds of the net revenue of each area (or one-third the value of agricultural production) was found to be a larger proportion than could ordinarily be paid by proprietors, and hence, under the Saharanpur Rules of 1855, was supposedly reduced to 50 per cent of the average annual net income:

The assets of an estate can seldom be minutely ascertained, but more certain information as to the average net assets can be obtained now than was formerly the case. This may lead to over-assessment, for there is little doubt that two-thirds, or 66 per cent, is a larger proportion of the real average assets than can ordinarily be paid by proprietors or communities in a long course of years. For this reason, the Government have (sic) determined so far to modify the rule laid down in paragraph 52 of the "Directions to Settlement Officers" as to limit the demand of the State to 50 per cent, or one-half of the average net assets. By this, it is not meant that the Jama [assessment] of each estate is to be fixed at one-half of the net average assets, but that in taking these assets with other data into consideration, the Collector will bear in mind that about one-half, and not two-thirds as heretofore, of the well-ascertained net assets should be the Government demand.⁵⁸

The reduction was accomplished, when it was put into effect in 1864, six years after the East India Company's rule was replaced by that of the British Crown, by a proportionate reduction in the percentage of total value of area products which were to be taken.⁵⁹ At the same time, how-

⁵⁷Ibid., pp. 94-95.

⁵⁸Douie, Appendix I, p. i.

⁵⁹Ibid., p. 28.

ever, the settlement officers were warned again not to waste their time in exactly ascertaining the value of production of land in areas where taxes were being settled.⁶⁰ In any case, the net effect of this 1855 rate adjustment was generally to reduce the tax on each plot of land.

These assessments under the "general considerations" method required no proof that the new State demand represented any certain per cent of the value of the area's agricultural production. The first real effort to improve this process of taxation was effected by the Punjab Land Revenue Act, which was drawn up in 1871.⁶¹ The Act required the tax administrator to establish some form of proof in support of the government tax demand as well as specified a detailed procedure for determining the value of each area's products and net annual revenue and each individual landowner's tax liability.⁶²

The cultivated parts of each area were divided into classes according to the soil and nature of irrigation. An average yield per land unit was estimated for each crop on each class of soil by means of crop experiments. This yield was multiplied by the average harvest prices

⁶⁰Ibid., Appendix I, p. i.

⁶¹Also in 1871, the Punjab government was allowed to impose an additional surcharge amounting to six and one-fourth per cent of the basic land tax to meet increased administrative financial needs. This rate was increased to eight and one-third per cent in 1878 to make necessary provisions for the charity expenses brought about by the existence of widespread famine. In 1883, this rate was set at twelve and one-half per cent. Also in 1883, the land tax surcharge to provide funds for the village tax officers was raised to twelve and one-half per cent of the basic land tax: Douie, pp. 49-53.

⁶²Trevaskis, p. 263.

for the past 20 years and by the number of acres for each class of soil. The total of all classes gave the value of gross product, of which one-sixth⁶³ was the standard assessment under the specific assumption that this was equal to 50 per cent of the area's net revenue.⁶⁴ Assessment per individual was then worked out according to the nature of the soil of his land and its size.

The land taxes continued to be assessed according to this procedure until 1887 when a new policy was initiated and used for a short period of time.⁶⁵ Under this policy, more systematically maintained village records and reports of field inspections by revenue officials and special officers were used to provide data on crops, occupants, and rents for the use of settlement officers. The data were much more extensive than those which had heretofore been available as they included estimates of the average yields of the crops of both harvests at the time when they were ripened as well as constant inquiries into the level of agricultural prices. All these statistics were entered in the area's revenue records, and area tax reassessments falling between 1887 and 1893 were made on the basis of average area gross production values derived from these records rather than by the special assessment staff of the government's settlement department.⁶⁶ This policy lost favor in

⁶³First one-third was the standard assessment. Then it was one-fourth and finally one-sixth. No dates are available as to when these later fractions became the standard assessments.

⁶⁴Trevaskis, p. 264

⁶⁵Ibid., p. 273.

⁶⁶Douie, pp. 42-45.

1889 with the death of its chief proponent, Colonel Wace, when advocates of the older system again held the main administrative positions.⁶⁷

The old system was revived in 1893 with one very significant modification related to the determination of area net revenue.⁶⁸ The standard rate of assessment was reaffirmed not to exceed one-half of the value of the annual net assets. Annual net assets were again defined as the average annual surplus which land yields after deduction of the expenses of cultivation. Now, however, instead of assuming the net revenue to be equal to some proportion of the value of total production, the exact share to be taken was a question to be settled separately for each area under analysis appropriate to the circumstances of the case. If information about them was available, rents paid by tenant cultivators who rented land from landowners were considered, after deducting any labor and capital costs of the landowner, as a near approximation of the net revenue of the land and were to be used as a measure in lieu of a constant per cent of the total value of area production.

Basically, the rents paid on each type of land in a given area were to be assumed to be representatives of the net revenues of all the farms in the area with that type of land.⁶⁹ Farms comparable except in size were assumed to have a tenant-rent-generating ability that differed as their size differed. Since most tenant rents were paid in kind, the determination of money values was a problem. Other problems involved

⁶⁷Trevaskis, p. 278.

⁶⁸Douie, p. 46.

⁶⁹Douie, Appendix I (D), pp. iv-v.

assigning farms to appropriate categories and obtaining rental specimens.

Due to diverse agricultural conditions, the settlement officers were to break up each area into more or less homogeneous blocks, containing the farms which had a strong general likeness as regards the chief factors possibly affecting the level of potential net product in that area. These blocks were to be based upon settlement officers' observations as well as a topographical survey made by the Imperial Survey Department for this purpose and field surveys made by the village accountant.⁷⁰ The Imperial Survey dealt with villages as a whole, mapping their boundaries and showing their main topographical features, i.e., roads, canals, and large bodies of water. It was used as the basis for the field surveys which contained particulars of the various agricultural fields.

The money value of the rent given in kind was based on average prices of the past. The decision as to what level of prices was to be used depended on the past experience of the area. Usually the history of prices during the whole term of the expiring settlement was traced to determine the rise or fall of agricultural values.⁷¹ The computation was based on the prices which the farmers obtained for their products as revealed by the books of the village shopkeepers, to whom the farmers sold their produce, as well as the official district government records

⁷⁰Ibid., pp. 161-162.

⁷¹Ibid., pp. 176-177.

of monthly prices. Prices during periods of severe scarcity were excluded.⁷²

When no representative rent experience could be located in a homogenous part of an area, the settlement officers were to attempt to estimate an appropriate level of rents for an area using representative farms, estimating their production and its market value, and then deducting sums equal to the expenses of production. Prices were determined in the same way that the value of rent paid in kind was derived. Yields of the representative farms were estimated by crop experiments, personal observations made by the settlement officers and information gathered from trustworthy persons, by accounts of landowners where obtainable, and by yields assumed for similar tracts elsewhere.⁷³ From this value of gross product, deductions were made for whatever the settlement officers assumed the costs of production to be. Conceptually, these would have included payments to artisans and laborers for their services, an estimate of the value of the landowner's family labor, seed, feed, tools, and other such items. The extent of these deductions was determined by the settlement officers.⁷⁴ The remainder represented an estimate of the rent which would be paid by a tenant, and the State continued to take 50 per cent of it until 1928.

Four changes were made in 1928: (1) the government reduced its tax demand from 50 per cent to 25 per cent of actual or estimated tenant

⁷²Ibid., pp. 177-178.

⁷³Ibid., p. 179.

⁷⁴Ibid.

rents; (2) the duration of each settlement was extended to 40 years; (3) for the first time there was a specification of the expense items acceptable as deductions from the money value of the actual rents when they were paid by the landowners; and (4) procedures were specified by which cash rents were to be used as the basis for taxes.⁷⁵

The deductions included:⁷⁶

- (1) Water rates.
- (2) Maintenance of means of irrigation.
- (3) Maintenance of embankments.
- (4) Supply of seeds.
- (5) Supply of manure.
- (6) Improved implements of husbandry.
- (7) Concessions with regard to fodder.
- (8) Special abatements for fallow or bad harvests.
- (9) Costs of collection of rent.
- (10) Allowance for shortages in collection of rent.
- (11) Interest charges payable in respect of advances made in cash, free of interest, to tenants for the purpose of cultivation.
- (12) Wages or customary dues paid to artisans or menials whose products or labor was utilized for the purpose of cultivation and harvesting.

Cash rents paid by tenants were used as the basis for estimates of net revenue where cash rents existed on a sufficiently large scale and

⁷⁵Ibid., Appendix I (E), pp. v-xiii.

⁷⁶Ibid.

where revenue records correctly showed the various types of soils found on each landholding. The settlement officers ascertained the prevailing cash rents from the village records in each area according to the class of soil and made the necessary adjustments to arrive at an estimate of tenant rents. The resultant rents were then compared with any estimates based on rents-in-kind; appropriate adjustments were made to bring the rents-in-kind to a monetary level, and the tax rates for each assessment area were determined.

The sliding scale system of revenue assessment. Until 1935, the tax assessments were usually raised if prices had risen in the period preceding the assessment. As a result, the revenue demand payable in the 1930's was based on the higher prices of the 1920's. Thus, during the Depression of the 1930's, when agricultural prices started falling,⁷⁷ the decrease in prices caused great distress to the peasants because the value of their production fell while their required tax expenses stayed constant based on the relatively prosperous 1920's.⁷⁸ To overcome this rigidity which had taxes constant in the face of falling income and which aggravated the cyclical fluctuation, the government introduced what was known as the Sliding Scale System of revenue assessment.

The Sliding Scale System was first used in the Punjab at the time of the re-settlement of the Lyallpur district in 1935.⁷⁹ The government

⁷⁷See Appendix A, Table A-8.

⁷⁸Brij Narain, Indian Economic Problems: Pre-War, War, and Post-War (Lahore, 1944), pp. 312-313.

⁷⁹Ibid.

wanted to set the tax requirements high enough to take into account the possibility of prices rising to the average level of the past 20 or 30 years and yet to adjust this demand at each harvest to current prices; thus, the chief feature of the new system was the annual adjustment of the level of land taxes in accordance with prevailing prices. No changes were to occur on account of production changes, and there was no change in working out the standard amounts of assessment; instead, these tax liabilities were considered "paper liabilities" and became effective only if the prevailing price was the same as the average price level on which the revenue assessment was originally based. When prices were below this level, remission from standard tax liability was granted according to the degree of difference between the average prices and the actual prices in the following year. Should the price rise above the calculated average price, the taxpayers were not to be charged additional taxes. This procedure continued until 1947.⁸⁰

The Importance of the Land Tax to the Government of the Punjab

The land was a major source of tax revenues both in the Punjab and in India during the period of time 1849-1947. It also remained as a major tax after 1947. Table II-1 presents the amount of actual land taxes collected in the Punjab 1901-02 -- 1941-42, 1953-54 -- 1961-62. The figures for the latter period are for the reduced land area of the

⁸⁰Anwar Iqbal Quershi, "Methods of Assessment of the Land Tax in Indo-Pakistan Sub-Continent," Papers and Proceedings of the Agricultural Taxation and Economic Development, Eds. Haskel P. Wald and Joseph N. Froomkin (Cambridge, Massachusetts, 1954), pp. 398-399.

TABLE II-1
LAND TAX REVENUES IN THE PUNJAB 1901-1961

Year	Basic Land Tax (Millions of Rupees) ^a (1)	Surcharges (Millions of Rupees) ^b (2)	Total (Millions of Rupees) ^c (3)
1901-2	26.3	6.6	32.9
3	26.6	6.7	33.3
4	28.3	7.1	35.4
5	28.9	7.2	36.1
6	29.4	7.4	36.8
7	29.4	7.4	36.8
8	28.2	7.1	35.3
9	29.9	5.2	35.1
10	30.9	5.4	36.3
11	31.9	5.6	37.5
12	34.2	6.0	40.2
13	36.4	6.4	41.8
14	37.9	6.6	44.5
15	39.5	6.9	46.4
16	42.4	7.4	49.8
17	44.1	7.7	51.8
18	46.1	8.1	54.2
19	45.7	8.0	53.7
20	49.8	8.7	58.5
21	46.9	8.2	55.1
22	49.0	8.8	57.8
23	53.2	9.3	62.5
24	57.5	10.7	68.2
25	51.7	9.0	60.7
26	52.1	9.1	61.2
27	52.2	9.1	61.3
28	50.4	8.8	59.2
29	53.4	9.3	62.7
30	52.5	9.2	61.7
31	46.5	8.1	54.6
32	47.7	8.3	56.0
33	48.5	8.5	57.0
34	51.3	9.0	60.3
35	49.6	8.7	58.3
36	53.6	9.4	63.0
37	53.4	9.4	62.8
38	na	na	na
39	50.5	8.8	59.3
40	53.8	9.4	63.2
41	56.3	9.9	66.2
42	68.7	12.0	80.7
1953-54 (d)	32.8	na	na
55	32.8	na	na
56	28.7	na	na

TABLE II-1 (Continued)

Year	Basic Land Tax (millions of Rupees) ^a (1)	Surcharges (Millions of Rupees) ^b (2)	Total (Millions of Rupees) ^c (3)
57	30.7	na	na
58	33.4	na	na
59	29.2	na	na
60	44.4	na	na
61	44.8	na	na
62	46.3	na	na

^aRai, Agricultural Statistics of the Punjab, 1901-02 to 1935-36, p. 102; Agricultural Statistics of the Punjab, 1936-37 (Lahore, 1938), p. 6; Agricultural Statistics of the Punjab, 1938-39 (Lahore, 1940), p. 6; Agricultural Statistics of the Punjab, 1939-40 (Lahore, 1941), p. 8; Agricultural Statistics of the Punjab, 1940-41 to 1943-44 (Lahore, 1945). Economic and Statistical Organization Government of Punjab, Statistical Abstracts, Government Printing Press (Chandigarh, 1963), p. 412.

^bComputed by multiplying appropriate rate (i.e. 25 per cent of column 1 on account of Village official cesses and local rate from 1901-02 to 1906-07 and then at 17½ per cent from 1907-08 to 1961-62).

^cColumn 1 plus column 2.

^dThe post-partition data are not comparable with earlier information.

naStatistics not available.

Punjab assigned to India in 1947. They are also influenced by the amalgamation of certain "princely" states following partition whose revenues from land taxes were not included in the pre-partition totals. The figures for the earlier period emphasize the stability and rising trend of the revenues which the tax yielded; those for the latter period depict the increasing revenues being provided by the tax and indicate continued heavy reliance on its yield following partition. No data have been available to determine how much tax revenues were lost through partition or gained by the addition of the "princely" states.

Table II-2 reveals the importance of the land tax in the state of Punjab from 1921-22 to 1939-40, and from 1953-54 to 1961-62 in relation to all other sources of the Punjab revenues. This table shows that between 1921-22 and 1939-40, the land tax was the second largest single source of revenue for the Punjab Government. The most important source was the user charges for irrigation waters (charges collected by the government from the farmers for the sale of water provided by government constructed canals). The other sources of the Punjab government's revenues include such items as inter-governmental transfers, receipts from the sale of lumber from government owned forests, the "other taxes" which include sales taxes and motor vehicle taxes, "miscellaneous" receipts which involve the fees paid for access to various civil works and administrative services, excise duties on alcohol, opium, hemp, and other narcotics. The inter-governmental transfers are negative until 1925-26 because the Punjab was required to give grants to the central government.

The relative importance of the land tax as a source of revenue to the Punjab government declined slowly from 1921-22 to 1939-40. The decline continued in the post-partition years. However, the tax still remains as a major source of revenues for the Punjab government. The pre-partition decline in its relative importance appears to have been caused by changes in the size and nature of the inter-governmental grants; they went from negative to positive in the time period covered by the data in Table II-2 as the government began to send grants to the region rather than require the region to send grants to the national government. The relative post-partition decline occurred at the hands of new taxes and sources of revenue as well as the increased use of

TABLE II-2

SOURCES OF PUNJAB GOVERNMENT REVENUE, 1921-22 TO 1961-62^a
(PER CENT ANNUAL TOTAL REVENUES)

Year	Land Tax Revenue	Central Excise Duty	Income and Estate Tax	State Excise Tax	Stamp Tax	Other Taxes	Forests	Irrigation Receipts	Misc.	Inter Govt. Transfers
1921-22	34.6	---	---	16.3	11.5	.8	7.0	46.1	---	-16.5
23	39.0	---	---	12.4	10.7	.8	4.1	42.8	---	-9.9
24	39.7	---	---	11.4	10.5	.8	4.8	42.2	---	-9.4
25	36.2	---	---	12.2	12.0	.9	3.8	43.5	---	-8.5
26	26.6	---	---	10.7	9.9	.8	3.6	39.7	---	8.8
27	29.6	---	---	11.4	10.4	.8	3.6	35.0	---	9.2
28	24.9	---	---	9.8	9.8	.7	2.7	33.7	---	18.4
29	24.9	---	---	10.8	10.8	.8	3.0	33.4	---	16.1
30	22.9	---	---	10.2	10.2	.8	2.8	34.7	---	18.4
31	25.5	---	---	10.6	10.4	.8	2.3	34.1	---	16.4
32	22.3	---	---	9.4	11.0	.8	2.2	38.0	---	16.3
33	26.2	---	---	9.0	11.2	.9	2.0	29.9	---	20.9
34	23.3	---	---	8.8	10.1	.8	1.8	41.0	---	14.3
35	28.0	---	---	9.4	9.7	.8	1.8	37.5	---	12.9
36	26.2	---	---	9.4	8.7	.8	1.9	40.2	---	12.8
37	26.4	---	---	9.2	8.0	.8	2.0	39.0	---	14.6
38	26.1	---	---	8.9	7.5	.8	2.0	39.4	---	17.2
39	23.2	---	---	8.9	7.3	.9	2.1	39.8	---	17.8
40	23.0	---	---	9.2	7.2	.8	2.0	38.2	---	19.6
54	11.8	3.4	8.9	16.0	3.0	17.0	2.0	9.4	12.5	15.9
55	10.6	2.4	8.8	16.4	3.0	17.4	1.8	8.4	14.6	17.7
56	7.8	2.3	6.7	13.4	2.6	15.4	1.5	4.4	19.1	26.8
57	8.0	2.2	6.5	15.6	3.5	18.4	2.0	6.8	20.0	16.9
58	7.6	4.5	7.3	12.9	4.2	19.9	2.0	5.2	21.1	15.4
59	5.8	7.4	6.6	11.8	3.9	21.2	2.2	2.3	23.2	15.7
60	7.6	6.5	6.0	9.2	3.5	20.6	2.2	4.8	24.6	14.8
61	7.3	6.2	6.2	9.0	3.8	20.8	1.8	2.5	26.3	15.8
62	7.3	6.1	5.6	8.5	6.4	20.5	1.6	2.3	20.5	21.4

^aThe annual per cents were constructed for this study with the annual absolute amounts of each revenue source reported by P. J. Thomas, p. 521 (for 1921-22 to 1939-40), and by the Economic and Statistical Organization Government of the Punjab, p. 412 (for 1954-55 to 1961-62).

existing taxes and revenue sources.

The data in Table II-2 indicate that in the post-partition years, a new tax, the sales tax, replaced the land tax as the largest single source of the Punjab government's tax revenues. Also, during this time, older forms of taxation, such as the excise taxes, were increased enough to hold their own relative importance and become relatively more important than the land tax as a source of tax revenues.

In order to establish the importance of the Punjab land tax as a major source of tax revenues in the Punjab, the per cent that the land tax is of all taxes collected in the Punjab was computed for this study. The results are presented below in Table II-3.

TABLE II-3

REVENUES FROM THE LAND TAX AS PER CENT OF TOTAL TAX REVENUES
COLLECTED IN THE PUNJAB, 1921-22 to 1939-40
AND 1953-54 to 1950-61^a

Year	Land Tax	Year	Land Tax	Year	Land Tax
1921-22	54.7	1931-32	51.9	1953-54	19.6
23	61.9	33	55.4	55	18.5
24	63.7	34	54.2	56	16.5
25	59.1	35	58.4	57	14.8
26	55.5	36	58.0	58	13.3
27	56.6	37	59.4	59	9.9
28	55.0	38	58.3	60	13.8
29	52.5	39	57.6	61	13.3
30	51.9	40	57.1	62	13.0
31	53.9				

^aThe annual percentages were constructed for this study with the annual absolute amounts of land tax and total tax revenues reported by P. J. Thomas, p. 521 (for 1921-22 to 1939-40) and by the Economic and Statistical Organization, Government of the Punjab, Statistical Abstracts, p. 412 (for 1953-54 to 1961-62). The post-partition data are not comparable with earlier information.

The data in the above table indicate that prior to partition, over half of the taxes collected in the Punjab were land taxes and that the trend was not decreasing. The data also indicate that the importance of the land tax to the Punjab government, in the post-partition years covered by the study, decreased considerably. Furthermore, the land tax shows a trend of declining importance during the post-partition years despite the absolute increase in its size depicted in Table II-1; other taxes being collected in the Punjab are growing faster.

The secular decline in the relative importance of the land tax both as a source of revenue in the Punjab government and in relation to the various taxes collected in Punjab is presented for a longer period of time in Table II-4.

TABLE II-4

LAND TAX AS A PER CENT OF TOTAL REVENUES AND TOTAL TAX REVENUES IN THE PUNJAB 10 YEAR AVERAGES -- 1890-1962^a

Average for 10 Years Ending	Land Tax as Per cent of all Punjab Revenues	Land Tax as Per cent of all Punjab Tax Revenues
March 31, 1890	58.7	59.8
1900	58.4	60.0
1904	54.8 4 years	57.1 4 years
1910	not available	not available
1920	not available	not available
1930	30.2 9 years	56.8 9 years
1940	24.8	56.3
1962	8.2 9 years ^b	14.7 9 years ^b

^aPercentages computed from absolute amounts found in the following: for decades 1890, 1900 and 1904 from the Secretary of State for India Council, p. 387; for the decades 1930 and 1940 from Thomas, p. 521; and for the period ending 1962 Economic and Statistical Organizations, Government of Punjab, Statistical Abstracts, p. 412.

^bThe post-partition data are not comparable with earlier information.

The data in this table indicate that there was little secular change in the relative importance of the tax in comparison to other sources of taxation prior to partition. They also indicate that the tax is now relatively less important than it was prior to partition, although it still provides a substantial portion of all Punjab revenues and all taxes collected in the Punjab.

Table II-5 presents the proportion of total tax revenues provided by various types of taxes for both the Provincial and Central governments of India.

The data indicate that the land tax has consistently been an important tax. However, it was not as important relative to other taxes as it was in the agrarian Punjab. These data show that the importance of the land tax as a source of tax revenue declined in India prior to partition. This contrasts to the data in Table II-3, which did not decline from 1921-22 to 1939-40. Also in the only post-partition year for which comparable data are available, the land tax was less important as a source of government tax revenue for the whole country than as a source of Punjab government tax revenue.

TABLE II-5
COLLECTIONS OF SELECTED TAXES AS A PROPORTION
OF TOTAL TAX COLLECTIONS IN INDIA^a
(PER CENTS)

Year	Land Tax	Opium	Salt	Income	Other Excises	Custom
1861-62	49.8	15.9	11.4	5.1	4.5	7.1
1871-72	45.9	20.7	13.3	1.8	5.3	5.8
1881-82	41.5	18.7	14.0	1.0	6.5	4.5
1891-92	41.3	13.8	14.9	2.8	8.8	2.9
1901-02	41.8	11.1	13.6	3.1	9.3	8.8
1911-12	39.7	11.4	6.5	3.2	14.6	12.4
1913-14	41.5	3.2	6.7	3.8	17.3	14.7
1919-20	27.8	3.7	4.7	19.0	15.7	18.4
1921-22	25.8	2.3	4.8	18.6	12.8	26.1
1926-27	23.7	3.0	4.5	11.8	13.5	32.6
1929-30	22.1	2.0	4.5	12.5	13.6	34.3
1930-31	22.1	1.8	5.0	13.0	12.3	34.8
1931-32	23.6	1.5	6.3	13.6	10.7	34.0
1932-33	21.3	.6	7.1	13.5	10.4	36.6
1933-34	21.8	1.1	6.6	13.7	11.0	35.1
1941-42	18.1	.3	5.4	26.4	16.2	23.0
1948-49 ^b	5.1	na	na	na	na	na
1958-59	8.5	na	na	na	na	na

^aPercentages computed from the data on annual tax revenues found in the following sources: for 1861-62 to 1933-34 from Shirras, pp. 1086-1087; for 1941-42 from M. Epstein Ed. The Statesman's Year-Book 1942, (New York, 1942), p. 121; for 1948-49 to 1958-59 from V. V. Bhat, Aspects of Economic Change and Policy 1800-1960, (Bombay 1963), p. 41.

^bThe post-partition data are not comparable with earlier information.

^{na}Statistics not available.

CHAPTER III

THEORETICAL CONSIDERATIONS RELATING TO THE 1849-1947 PUNJAB LAND TAX

The Punjab land tax described in the preceding chapter has theoretical implications. These form the topic of the present chapter. More specifically, in the following pages the land tax will be classified, its rationale explained, and its theoretical implications analyzed.

The Nature of the Land Tax

As it was envisaged by contemporary scholars and officials, the 1849-1947 Punjab land tax, to the extent that it was equal to some per cent of net revenue, would have been conceptually closest to conventional property taxes as a general form of taxation; since net revenue is by definition the return to land and since the value of land, exclusive of the return to capital on it, is its capitalized flow, the tax base is the same as the land value. Furthermore, the property tax base is automatically changed as the value of the property changes, even though this is not necessarily true in practice; the tax base of each land holding was also supposed to change as its net revenue changed. The taxes are additionally similar in that both may have to be assessed in constant amounts over time because of the difficulties of measuring continual changes. Conversely, however, property taxes provide a base for apportioning tax requirements which may fluctuate, whereas a fixed

proportion of net revenue was supposed to be taken by the land tax during the time period covered by each settlement. Also, the property tax traditionally covers more types of property than land.

The Rationale of the Land Tax in the Punjab

The use of a land tax in the form described in Chapter II appears to have been rationalized at the time of its inception as an attempt to put into practice certain policies suggested by the Ricardian theories of rent and land taxation.

Ricardian Rent Theory. According to Ricardo, rent is a payment to land-owners for the use of the "original and indestructible powers" of the soil which they own.¹ These powers are bestowed in land by Nature. Ricardo specifically excludes from these powers the capital sunk by the landowner in land in the form of various improvements; the payment for its use is a return to the capital and therefore is not included in the rent.²

The cause of the emergence of economic rent is the ". . . progress of population, which shall oblige a country to have recourse to land of a worse quality, to enable it to raise its supply of food . . ."³

Quality refers to the "productive powers" of the land. Rent is received by all the land of higher quality than the worst in use. The amount of

¹Piero Sraffa, Ed., The Works and Correspondence of David Ricardo, I (Cambridge, England, 1953), p. 67.

²Ibid.

³Ibid., p. 70.

rent received by each quality of land is equal to the difference between the products which units of the lowest quality and other qualities yield with a given quantity of capital and labor.⁴

Thus, according to this paper's interpretation of Ricardo, economic rent is that portion of production yielded by a piece of land in excess of what a similar area of the poorest "quality" land in cultivation would yield with a similar outlay of labor and capital. It arises as the pressures of population result in bringing poorer lands into cultivation. Since the cost of production on these lands is higher than on the better grades of land, the price rises enough to bring these high-cost-of-production lands into cultivation; thus, owners of the superior, low-cost-of-production lands get the difference between the higher prices and their lower costs as an economic rent of the land, a payment over and above what it would take to get these lands into production. This rent, also referred to in the Punjab land tax literature as net revenue, goes to the landowners as the result of the population growth, not of the efforts of the landowners who have rendered no services to obtain it.

In view of the importance of the Ricardian concept of rent (net revenue) to the development of this paper, an endeavor will be made at this point to present a more precise description of the concept.⁵

⁴Ibid.

⁵The expanded discussion was distilled from several sources: William Fellner, Emergence and Content of Modern Economic Analysis, (New York, 1960), pp. 70-79; M. Blaug, Economic Theory in Retrospect, (Homewood, Illinois, 1962), pp. 71-78; Douglas C. Hauge and Alfred W. Stonier, A Textbook of Economic Theory, (London, 1959), pp. 273-291; Overton H. Taylor, A History of Economic Thought, (New York, 1960), pp. 193-196.

To wit: Once all the land of the same quality is tilled, a further increase in population will necessitate the extension of the margin of cultivation to less fertile and less suitably located and therefore higher unit costs of production lands. The extension of production to include these marginal lands is accomplished via the higher demand for foods resulting in higher food prices. Prices will rise until they are equal to the costs of production on the least favorable of the additional land required to feed the increased population. Then this land will be brought into cultivation, since now the other factors of production can earn a normal return on the land. The higher food prices which bring the marginal land into production also mean that there will be a difference between the new prices and the costs of production on the non-marginal lands. This difference is the surplus which Ricardo calls rent. There is no rent from the marginal land, as it only covers the normal rate of return to the labor and capital used on it. Since this form of economic rent arises as cultivation is extended to other land, it will be referred to as rent developed at the extensive margins.

The increasing demand, besides extending the margin of cultivation, would also call forth the application of additional quantities of labor and capital on all land already under use. The intensity of cultivation would be pushed forward because it will not pay to bring less fertile and less suitably located lands into use before returns from the marginal inputs of factors on the intra-marginal land have been made to diminish correspondingly. The intensity of production ceases to increase when marginal cost is equal to the price of the produce on all land. The price being greater than the average cost of the intra-marginal land, the latter commands surplus returns which shall be

designated as rent at the intensive margin.

Diagrammatically, the emergence of rent at both the extensive and intensive margins is shown for land uses representing different qualities of land graphically on Page 63.

In this diagram, the output of agricultural firms using a given unit of land is shown on the horizontal axis while the vertical axis shows the price for agricultural produce. Assume to start with an agricultural firm using quality 1 land whose long-run average and marginal cost curves are designated AC_1 and MC_1 , respectively. The return to land is not included in the costs. Also assume the price of agricultural produce is P_1 and the marginal and average costs of a firm using quality 1 land are equal to the price so that its output is OQ_1 . This land-using firm is operating on marginal land, and it is earning no economic rent.

When the price of agricultural produce rises to P_2 as a result of an increase in demand, the margin of the cultivation will be extended. New firms will enter. Their costs of producing the same amount of production as a firm using grade 1 land are higher because of the poorer land which is brought under cultivation by them. A new firm's average and marginal costs are shown by AC_2 and MC_2 . This firm will produce where its MC and AC are equal to price P_2 . The previously marginal firm which was operating on marginal land now possesses intra-marginal land. The price for its product is greater than its average cost. The land earns rent equal to the area represented by the rectangle P_1LMP_2 , assuming its output does not change. This is economic rent at the extensive margin.

However, the firm operating on intra-marginal land faces a price

Formation of Economic Rent both at the
Extensive and Intensive Margins

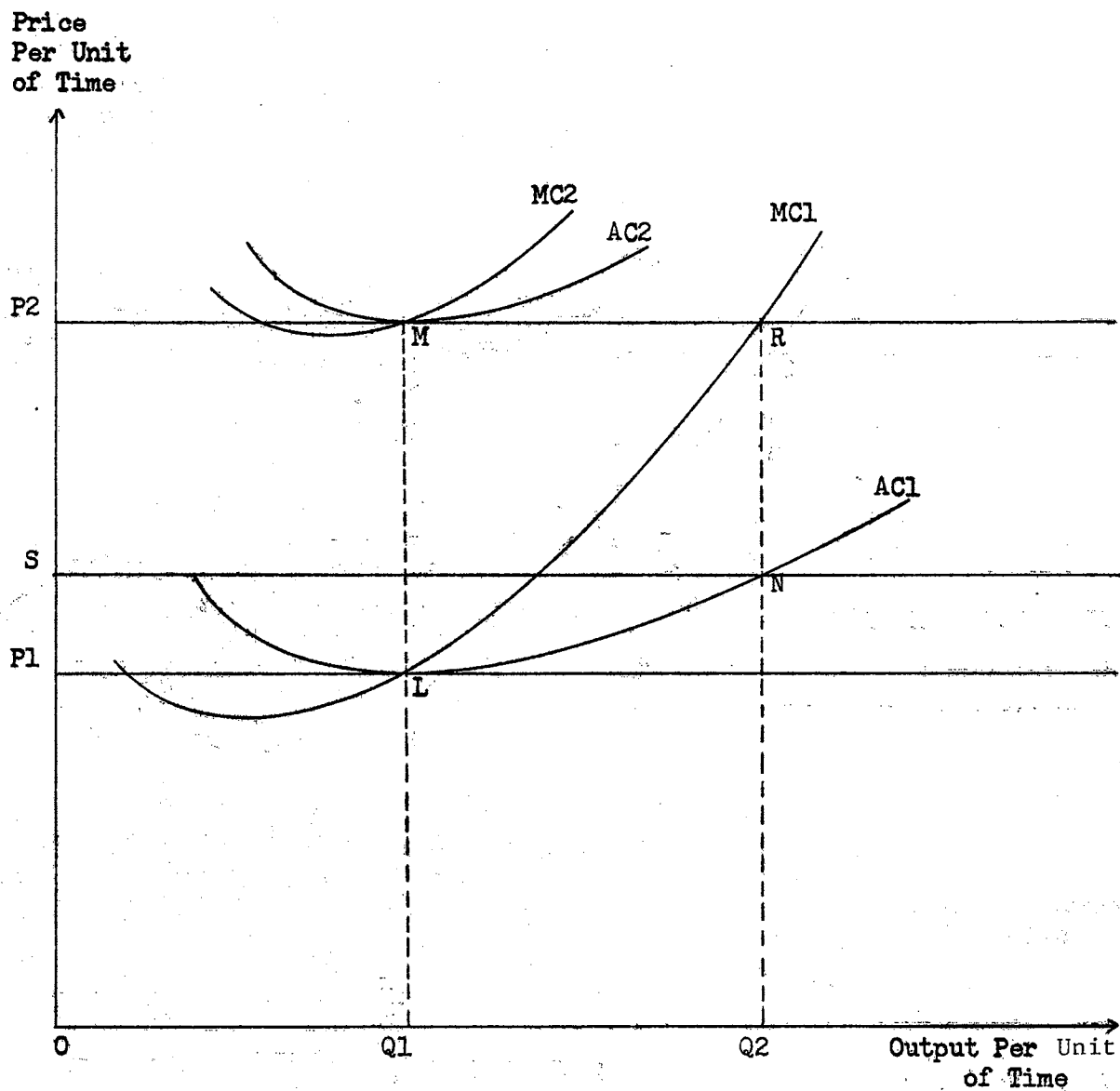


Fig. 3

which exceeds its marginal cost. It will be profitable for it to expand its output by intensively cultivating the land, thereby pushing the intensive margin forward. It will add more units of labor and capital, and stop at the output -- in this case OQ_2 -- where its marginal cost is equal to the price. The total economic rent accruing to the land under its cultivation is shown by the rectangle $SNRP_2$.

The Effect of a Tax on Rent. According to Ricardo, "A tax on rent would affect rent only; it would fall wholly on landlords and could not be shifted to any class of consumers."⁶

Ricardo's conclusions are justified because a tax on rent (net revenue) cannot be shifted. It cannot be pushed backward onto the other factors of production since they would leave to seek other, untaxed employment, nor forward, since production will not change in the presence or use of the other factors; thus, production and prices may be expected to remain unaffected by a tax so long as it only takes some portion of rent (net revenue) but leaves the return to labor and capital completely unaffected. Thus, the expropriation of rent (net revenue) would leave agricultural production unaffected, and the incidence of the tax would lie with the landowner.

The Land Tax as a Tax on Rent. Ricardo further notes that the way to accomplish taxation with such neutral effects on prices and production is by a certain form of land tax. Specifically:

A Land-Tax (sic), levied in proportion to the rent of land, and varying with every variation of rent, is in effect a tax on rent; and as such a tax will not apply to that land which yields no rent, nor to the produce of that capital which is employed on the land with a view to profit merely, and which never pays rent,

⁶Sraffa, p. 173.

it will not in any way affect the price of raw produce, but will fall wholly on the landlords. In no respect would such a tax differ from a tax on rent.⁷

The Punjab land tax was ostensibly aimed at taxing only this rent (net revenue) of the landowners.⁸ Before the Punjab was annexed and the British version of the land tax applied, the Ricardian theory had already established itself in other parts of India which had fallen earlier to the British. In these areas, the land tax had become an acceptable tax because it was thought that it fell solely on the rent of the land (net revenue):

. . . what is erroneously called the land-tax, is not a tax at all; but that the revenue is derived simply from the appropriation to the state, for public purposes, according to immemorial usage, of a large proportion of the rent of the land . . .⁹

That this occurred was generally accepted. James Mill, while testifying before the Select Committee of the House of Commons in August, 1831, went as far as to declare that India was a fortunate country because the state's tax demands were met from the economic rent of the land (net revenue) and, therefore, man's labor and capital remained untaxed. He said:

I conceive that the peculiarity of India, in deriving a large proportion of its revenue from the land, is a very great advantage. Nine-tenths probably, of the revenue of the Government of India is derived from the rent of land, never appropriated to individuals, and always considered to be the property of the Government; and, to me, that appears to be one of the most fortunate circumstances that can occur in any country; because, in consequence of this, the

⁷Ibid., p. 181

⁸Henry Tucker, Director of East India Company, quoted by Griffiths, p. 383.

⁹From speeches delivered at a public meeting concerning the Revenue System of British India; quoted in "Article III," The Edinburgh Review, LXX (October, 1839-January, 1840), p. 397.

wants of the state are supplied, really and truly, without taxation. As far as this source goes, the people of the country remain untaxed. The wants of government are supplied without any drain, either upon the produce of any man's labour or the produce of any man's capital.¹⁰

Mr. Mill strongly recommended that any taxes be levied on the land's economic rent (net revenue) because it has no effect on production or development:

It is sufficiently obvious, that the share of the rent of land, which may be taken to defray the expenses of the government, does not affect the industry of the country.¹¹

Taxes Exceeding Economic Rent. If taxes do exceed the economic rent, in addition to being borne partially by the landowner in terms of lost rent, the possible incidence of the balance of the tax may remain on the landowner in terms of a lower return to his fixed capital; be pushed forward to the consumers in the form of higher prices; or be pushed backward to the labor and variable capital of others who are employed in producing on the land. The distribution of the incidence is determined by the extent to which the tax exceeds the economic rent.

In the short run, other things equal, the production of agricultural products will be left unchanged so long as the tax is to continue, even if production ceases, so that it is not a variable cost.¹² With no change in production, there is no reason for the prices

¹⁰Evidence by James Mill before the Select Committee of House of Commons in August, 1831; quoted in "Article III, "The Edinburgh Review, p. 397.

¹¹James Mill, Elements of Political Economy (3rd ed., London, 1844), p. 248.

¹²The condition of the tax's continuing even when economic rent is zero is required to meet the specific condition that the tax exceeds economic rent.

of the agricultural products to change. Since the landowner does not change the land use, there is no change in his demand for labor or other variable factors, and their prices remain constant. Thus, in the short run, when the tax exceeds economic rent, the landowner bears the entire burden, and there is no shifting.¹³

Under certain conditions the effects may be different in the long run. If in the short run the tax exceeds the landowner's economic rent and he cannot raise the price of his land's commodities or lower the cost of the labor and variable capital he employs on his land, he will get the equivalent of a lower return on his fixed capital equal to the difference between his rent and his total tax liability. This reduced return may induce him to forego the replacement and maintenance of his capital in order to avoid going into debt or depleting his savings. Furthermore, one of these effects will certainly be forced upon the landowner if his savings from income generated by his labor and variable capital are not enough to pay the amount by which taxes exceed net revenue; the balance of the taxes must be paid, and there are no other sources.

In the long run, less capital may mean less production, and to the extent that this occurs and causes a decrease in the supply of agricultural products, it may cause an increase in their prices as paid by the consumers.¹⁴ Partial forward shifting thus occurs. The extent to which the tax may be shifted, however, depends on elasticity of supply.

¹³Haskell P. Wald, Taxation of Agricultural Land in Underdeveloped Economics (Cambridge, Massachusetts, 1959), pp. 88-89.

¹⁴*Ibid.*, p. 90.

"If the supply is completely inelastic in the sector that is taxed, a tax-induced increase in costs will not be transmitted outside the sector."¹⁵ The degree of elasticity of supply in turn will depend on the number of alternative untaxed employment avenues available outside the agriculture.

In the long run, it is also possible that the land will be abandoned by the owner, since he cannot continue to operate at a loss forever. There is reason to expect, however, that in an economy with characteristics such as prevailed in the Punjab throughout the time period covered by the study, this would take place after a period of time during which the land was involuntarily decapitalized and the owner reached his maximum level of indebtedness.

Furthermore, hope may spring eternal and the bankrupt agricultural firm may be assumed by another individual with no alternative opportunities for his labor and capital who also hopes for a reversal in the situation before his capital is gone and he is enmeshed in debt. This may differ from the results expected in the long run for an industrialized economy where opportunities of alternative employments are far greater than in an underdeveloped, agriculturally-oriented economy. In an industrialized economy the mobility of resources might be quite high; then a tax levied on land and exceeding economic rent will prompt the landowners in the long run to move to the untaxed or lightly taxed occupations. The supply of agricultural products will, ceterus paribus, tend to decline, and the prices, ceterus paribus, and assuming that demand is not perfectly elastic, will tend to rise. A part of the tax may be

¹⁵Ibid., p. 93.

shifted to the consumers.

The Punjab Land Tax as a Tax on Economic Rent

Avoidance of the effects discussed above requires that taxes never exceed net revenue. This means that the determination of the size of net revenue and the assignment of taxes must be accurately accomplished. This obviously requires detailed information on prices, production, variable costs, including the opportunity costs of the land occupants' labor and the land's capital maintenance requirements. And since these components can be expected to change over time, information must be available as to their variability. These data required for accurate computations are notoriously difficult to obtain and were not available in the Punjab for each landholding. Thus, even assuming high levels of taxpayer morality and incentives for revenue officials to be scrupulously fair and accurate, the factual information for measuring economic rent in the Punjab or most other nineteenth century countries would have been lacking. In fact, no effort was made to directly compute the economic rent of each landholding. Instead, certain assessment arrangements were used to estimate its size.

Rent-Estimating Procedures in the Punjab

According to the instructions given the settlement officers, estimates of the size of the net revenue tax base in the Punjab were at various times to be derived by assuming it was equal to some percentage of the gross value of agricultural production or to the rents which tenant farmers paid to landowners. These measures became de facto tax bases. These bases, however, do not necessarily designate what the net

revenue is. As such, taxes based on the gross value of agricultural production or tenant rents may fall short, be equal to, or exceed net revenue. Accordingly, the economic impact of the tax as discussed in a previous section will depend on whether or not the tax liability of the landowner was limited to the net revenue. The suitability of these alternate measures in the specification of net revenue is discussed below.

Gross Value of Agricultural Production. The use of the gross value of agricultural production¹⁶ as a vehicle for estimating net revenue in the 1849-1947 Punjab had the advantage of being more easily measured than actual net revenue; it was only necessary to determine revenue instead of both revenue and costs. This tax base is very similar to the tax base used in the Punjab prior to 1849 which also assigned a constant percentage of the GVAP to the government. However, the use of this tax base became more complex than the pre-1849 land tax; it required estimates of both production and prices in contrast to the earlier tax which emphasized production, since it permitted payment in kind rather than cash.

The use of a constant proportion of the GVAP to specifically estimate net revenue requires the assumption that the labor and capital costs of production were some constant percentage of the GVAP in every area, on every sized farm, and during every time period.¹⁷ No reason was ever presented as to why net revenue could be assumed to be equal to

¹⁶The gross value of agricultural production will hereafter be referred to as the GVAP.

¹⁷Wald, p. 121.

some fixed percentage of the value of all agricultural production. In the absence of the validity of these assumptions, the use of a fixed percentage of the GVAP was bound to yield a tax liability for each land holding which would differ from that based directly on net revenue. To the extent that this happened, the ratio of taxes to net revenue could be expected to vary from one land holding to the next.

There is every reason to expect that costs were not a constant percentage of gross value. It is reasonable to assume that they varied from one area to the next if only because they were affected by climate and soil fertility. Furthermore, they varied from one size of farm to the next; average labor and capital costs per unit of production on a larger holding may be smaller because of economies of scale. A larger holding will permit greater division and specialization of labor as well as relatively advanced techniques of production.

There are several possible economic differences which may be caused by the use of gross revenues as the tax base instead of net revenues. First, taxes may be larger than if net revenues had been used as the tax base; gross revenues are always positive in contrast to net revenues which could be non-existent or even negative if the labor and capital costs are high enough relative to revenues. Furthermore, the availability of the larger figures for gross revenue and the absence of data on net revenue might tempt a tax assessor to assign taxes which exceed the intended proportion of net revenue.

Second, since taxes may be larger than they would be if net revenue is used as the tax base, they may exceed net revenue and thus have the effect already described.

Third, the use of the GVAP as the tax base would have the effect of

assigning increased tax liabilities to landowners whose production is expanded to bring in more revenue; thus, to the extent that each landowner faces a given price for his products, he must pay more taxes if his land produces more goods. The extra taxes thus cut the return that each landowner receives for such production and may cause him to cease production at a level lower than would result if this additional marginal cost, which is unrelated to the labor and capital costs of production, did not exist.

Tenant Rents. Another indicator used as a tax base were tenant rents. Tenant rents are conceptually equal to net revenue when no returns to the landowner's labor and capital are included in the rent. The tenant's costs of production are equal to the returns required to obtain similar amounts of the labor and capital the tenant uses in production at maximum profit levels of output. Any difference between these production costs and total revenue must go to the landowner as rent; rents cannot be less than net revenue. If they were, the landowner could be expected to obtain other tenant labor and capital. On the other hand, landowners cannot obtain rent which exceeds net revenue because the landowner cannot force labor and capital to take less than they could earn in an alternative position. Thus, a tax which falls only on this rent could have no effect on production, since the returns to labor and capital are unaffected, and the landowner cannot move his land; all the landowner can do is continue to provide his land and allow the labor and capital to work on it so as to maximize his rent receipts and thus maximize the amount he will have left after paying taxes.

The use of tenant rents as a vehicle for estimating the size of net revenue in the 1849-1947 Punjab had the advantage of making automatic allowances for the costs of the occupant's labor and capital without the

extensive computations required for directly estimating net revenue. There are, however, certain problems involved in the application of tenant rents which are likely to lead to unacceptable net revenue estimates. First, there is the problem of disclosure. The Punjab tenants and landowners were inevitably illiterate and suspicious of anything having to do with taxation. Rental agreements were not a matter of public record until attempts were made to enforce performance through the courts. However, such records could have been required and kept by local administrative officials.

Second, net revenue is, conceptually, constantly changing as costs and revenues change, while rents may be periodically fixed by contract. Thus, the costs of obtaining the information needed for interim estimates may be quite high.

Third, rents vary periodically, and thus it would be necessary to have a system of disclosure which would obtain information on how they vary. In Punjab, once taxes were set on the basis of tenant rents, changes in future tenant rents had no effect for the duration of each tax settlement. However, such information could have been obtained if the rental agreements had had to be filed to be enforceable.

Fourth, even if perfect knowledge of tenant rents had been available, such agreements often included a return to any labor and capital supplied by the landowner. This return to labor and capital could not, by definition, be part of net revenue.

Fifth, tenant rents may be paid in kind. Thus, in order to base cash tax payment on these rents, it would be necessary to estimate prices in order to obtain an estimate of net revenue in money terms so that tax payments made in cash would be the correct proportion of net revenue.

Sixth, rents are based on the tenants' anticipated level of revenue and costs rather than on the land's actual net revenue from realized revenues and costs; the tenant rents are established prior to the determination of actual revenues and costs and thus may be different from what is actually realized as net revenue.

Despite the administrative drawbacks inherent in the use of tenant rents, they are conceptually identical to net revenue after all labor and capital costs of the landowner are removed; thus they probably provide the most accurate estimates which can be derived without actually computing net revenue. There are several major advantages of the use of rents relative to the use of GVAP. First, they automatically provide for varying levels of unit costs, since the tenant would have to cover his costs before agreeing to the payment of rents. Second, rents could conceptually provide some degree of flexibility related to changes in the size of net revenue as they change in response to revenue and cost changes; the actual provision of such flexibility would require disclosure, but this could be accomplished by requiring the recording of rental agreements to make them enforceable.

The Method of Land Tax Payment

Whatever be the relation of gross value of agricultural production and tenant rents to the net revenue, the mode of payment of the tax itself and its frequency of assessment have important bearing on the possibility that the taxes could have exceeded economic rent.

Constant taxes instead of variable tax. The introduction in 1849 of fixed tax liabilities in contrast to the proportional collections of the pre-1849 land taxes in the short run may have had the initial temporary

effect of lowering marginal costs. Marginal costs would be lower as tax liabilities did not rise as production rose. This contrasts with the pre-1849 land tax which took a constant proportion of all production so that higher production automatically meant higher marginal costs via additional tax liabilities. Thus, the elimination of the tax portion of marginal costs may have caused post-1849 marginal costs to be equal to marginal revenues at levels of production higher than those which existed earlier with the presence of the tax liabilities caused by the form of the pre-1849 land taxes. The short-run effect would be a tendency toward increased supplies of agricultural produce.

In the long run, when all costs are variable, the short-run production effects will, however, disappear as the tax would have become a part of the long-run marginal cost, and its cost effects are likely to be the same as of the pre-1849 land tax.

A fixed tax liability has its drawback: Even when crops fail due to drought, or some other natural calamity so that no rent is possible, the tax must still be paid. As a result of his income having been so reduced, a landowner may be forced into debt in order to meet his tax liability.

A landowner's demand for cash in an underdeveloped economy such as that of the Punjab is likely to be inelastic during poor-crops years because of (a) the rigidity in tax collections, and (b) the absence of organized capital market. The creditor, therefore, being in a superior bargaining position, may be able to charge a higher rate of interest from the debtor. The debtor, in turn, may find it difficult to pay back his debt with interest because of his precarious standard of living. The final outcome may be an increase in acreage under mortgage with an

increasing number of landowners falling under debt.

Cash Taxes Instead of Tax in Kind. The 1849 tax introduced another change from the tax which preceded it. The earlier tax was payable in cash or kind and in amounts equal to some fixed proportions of the current production. Payment was usually in-kind. The imposition of the latter tax, therefore, tended to speed up the change-over of the Punjab economy from a primarily barter economy toward a money economy; landowners had to pay their taxes in cash, and that meant that they either had to receive money rents from tenants or sell their rents-in-kind. In either case, barter was now no longer the only way of life for a majority of the population; farm produce had to be sold in the market for cash. This forced change towards a money economy undoubtedly facilitated a different system of trading of all goods as it ended the domination of barter relationships. That the changeover to cash payments may have actually had such an influence as causing more goods to be sold in the markets for cash is suggested by the substantial and relatively permanent decline in Punjab farm product prices which accompanied the initial use of this form of taxation in 1849. An index of the prices of wheat, the Punjab's major crop, moved from 107 in 1849 to 95 in 1850 and 65 in 1851. It did not regain its 1849 levels until the famine of 1861.¹⁸

At the same time, the burden of the land tax may vary with price fluctuations. Higher prices by lowering the real burden of the tax may reinforce inflationary pressures by requiring fewer items to be sold in order to obtain cash for tax payment purpose, while lower prices will

¹⁸Brij Narain, Indian Economic Life, Past and Present, (Lahore, 1929), pp. 151-152.

increase the tax burden. During low-price periods the landowners may find it difficult to meet their fixed tax liability as a result of the heavier tax burden.

Chapter Summary

The discussion of the land tax in this chapter reveals that a tax on land is a form of general property tax.

The conceptual appeal of Ricardian rent theory -- that a land tax not exceeding economic rent has no deterrent effects on agricultural production -- led the Indian Government to rationalize the retention of the already existing land tax as a source of revenue. The determination of economic rent (net revenue), however, is almost impossible due to lack of required information, especially in under-developed countries. Substitution of alternate measures, such as the GVAP or tenant rents to indicate economic rent or net revenue, may result in a landowner's tax liability which exceeds, falls short, or is equal to the net revenue.

A tax in excess of rent, by reducing the return to labor and capital, is likely to check future capital investment and may cause indebtedness. The fluctuating agricultural incomes and fixed tax liability may also drive the landowners into debt, especially during the years of poor harvests or when prices are low because they must pay the tax in order to retain their land. The eventual outcome may be stagnation or a decline of farm productivity as a result of the inability to conserve the soil of the landowner who is barely able to feed himself and his family.

CHAPTER IV

EMPIRICAL EVIDENCE CONCERNING THE NATURE AND EFFECTS OF LAND TAXES IN THE PUNJAB

The discussion in Chapter III covered the relationships assumed by the government and the intended and possible effects of using a land tax in the Punjab. This chapter will endeavor to test these relationships and effects with empirical evidence.

The Estimates of Net Revenue

The land taxes were supposed to be some proportion of net revenue. However, instead of directly computing net revenue, the settlement officers were to estimate its size via the use of the rents paid to landowners by tenants and the GVAP; the government assumed that there was a constant relationship between the size of these items and the size of net revenue. The government also assumed that it had identified the relationship with tenant rents and that the GVAP could accurately estimate net revenue from them. Obviously, if the relationships which were assumed did not always hold or if the size of the rents and the GVAP were not estimated accurately, the derived estimates of net revenue might differ from actual net revenue. The existence of this situation would then be expected to cause taxes collected to differ from the amounts which would be collected if the tax rates had been applied to accurate measures of net revenue.

In order to examine the validity of the various methods of estimating net revenue, the following hypothesis and tests have been developed for this study.

Hypothesis 1: The various methods of estimating net revenue were correct

Test A: Compare estimates of net revenue to estimates of one-third of the GVAP

The first test is suggested by the fact that the government did appear to assume that net revenue was equal to a constant proportion of the GVAP. It is possible to examine the validity of the hypothesis by comparing estimates of one-third of the GVAP with estimates of net revenue constructed by subtracting costs of production excluding land taxes and tenant rents from the value of agricultural production. If they are identical, it may suggest that the hypothesis is true.

A search of the literature reveals that such a comparison can be made on the basis of a study made in 1941-42 by the Punjab Board of Economic Inquiry. This study estimated farm income, expenditure, net revenue, and tenant rents on 25 holdings in thirteen districts of the Punjab for the year 1941-42. No information was available concerning the way in which the farms were selected. Once the farms were chosen, however, detailed studies were made of their per acre production, prices received, and per acre costs during the survey year. The actual estimates of net revenue were made by subtracting production costs for labor and capital (but exclusive of tenant rent and taxes) from the estimated value of production.

The results of the Board's survey are presented in Table IV-1. The data suggest that there was wide variation in the relationship of the two estimates from one area to the next.

TABLE IV-1

NET REVENUE ESTIMATES COMPARED WITH ONE-THIRD OF
VALUE OF GROSS PRODUCE -- 1941-42

Area	Net Revenue ^a (1)	One-third of Value of Gross Produce ^b (2)	One-third of Gross Produce as a Per cent of Net Revenue ^c (3)
Irrigated Areas	Rupees Per Acre	Rupees Per Acre	Per cent
Mountainous	65.82	44.8	68.1
Sub-Mountain	24.60	45.2	183.7
Central Punjab	29.12	32.4	111.3
Jumna River Zone	39.39	31.4	79.7
Southeastern Dry Tract	25.04	20.0	79.9
Unirrigated Areas			
Mountains	1.15	9.0	982.6
Sub-Mountain	8.94	15.0	167.8
Central Punjab	14.85	na	na
Jumna River Zone	0.86	na	na
Southeastern Dry Tract	2.06	na	na

^aData in column 1 from Board of Economic Inquiry, Punjab, Farm Accounts in the Punjab 1941-42, (Lahore, 1946), p. 26.

^bData in column 2 are equal to one-third estimated value of gross produce reported by the Board of Economic Inquiry, p. 21.

^cData in column 3 have been computed by dividing column 2 by column 1 and then multiplying by 100.

na Statistics not available.

The data suggest that the hypothesis is not supported. There appears to be no constant relationship between the size of the GVAP and the size of net revenue and certainly not the one assumed by the government.

The Punjab Board of Economic Inquiry investigation was based on a sample of 25 farms and dealt with only one period of time, 1941-42. It is possible that in other years or when the whole Punjab region is considered, there would be an average relationship between the GVAP and net revenue and that it would be the one assumed by the government. The present study attempts, therefore, to consider that possibility; estimates of economic rent, which additionally include the return to the land occupant's labor, have been compared to one-third of the estimates of the GVAP for the period of time 1913-14 to 1941-42.¹

Both sets of estimates were constructed for this study. They are presented below in columns 3 and 5 of Table IV-2.

Comparison of net revenues with one-third of the GVAP supports the earlier finding that the use of one-third of the GVAP would over-state the level of net revenue and thus not uphold Hypothesis 1; the GVAP-based estimates are substantially higher despite the very conservative cost estimates which were used and the fact that the returns to the land occupant's labor were not subtracted and thus were lumped together with the net revenue.

There is, however, another possibility: that even if one-third GVAP did not equal net revenue in any given year as the government assumed, the difference might average out over a longer period of time.

¹For construction of these estimates and their reliability, see appendices A and B respectively.

TABLE IV-2

ANNUAL ESTIMATES OF AGRICULTURAL NET REVENUE IN THE PUNJAB,
1913-14 TO 1941-42 (MILLIONS OF 1913-14 RUPEES)

Crop Year	GVAP ^a (1)	Cost of Production Except Occu- pants' Labor ^a (2)	Net Revenue Plus Return to Occupants' Labor ^b (3)	One-third of the GVAP ^c (4)	Settlement Officers' "Net Revenue" Estimates ^d (5)
1913-14	588.32	472.84	115.48	196.11	75.8
15	736.07	549.04	187.03	245.36	74.5
16	446.78	448.59	1.81	149.27	77.8
17	622.27	549.04	73.23	207.42	79.5
18	728.74	569.83	158.91	242.91	78.1
19	512.02	379.31	132.71	170.67	49.4
20	745.83	504.01	241.82	248.61	58.9
21	444.52	426.07	18.45	148.17	45.8
22	736.87	536.92	199.95	245.62	52.1
23	754.61	550.78	203.83	251.54	90.9
24	751.54	529.99	221.55	250.51	97.5
25	624.81	549.04	75.77	208.27	67.1
26	610.93	514.40	96.53	203.64	65.9
27	648.43	526.53	121.90	216.14	73.5
28	576.14	510.94	65.20	192.05	72.5
29	609.28	554.24	55.04	203.09	144.3
30	705.25	536.92	168.33	235.08	187.5
31	659.03	524.80	134.23	219.68	310.0
32	651.52	554.24	97.28	217.17	280.6
33	638.72	521.33	117.39	212.91	233.7
34	669.65	597.54	72.11	223.22	306.3
35	655.90	516.14	139.76	218.63	268.1
36	696.38	552.51	143.87	232.13	268.0
37	764.14	564.63	199.51	254.71	234.7
38	na	na	na	na	na
39	611.42	498.82	112.60	203.81	243.3
40	716.11	517.87	198.24	238.70	226.5
41	728.82	568.10	160.72	242.94	249.7
42	769.06	559.44	209.62	256.35	186.9

^aData are from Appendix A, Table A-5 column 5, and from Table A-11.

^bColumn 1 minus column 2.

^cOne-third of column 1.

^dThe estimates were obtained by multiplying the annual Punjab land tax collections of Table II-1, column 1, by the price index of Table A-8 of Appendix A and then multiplying by 100. The results were then multiplied by the proportion of the estimates which was to be taken in land taxes.

naStatistics not available.

The taxes based on such estimates could be, over the period of time, the specified proportion of the net revenue. Even that does not seem to hold true because one-third of the annual average GVAP is 219.10 million rupees while the average annual net revenue is 132.83 million rupees, the former over-stating the latter by 65 per cent.

Thus, the data presented in Tables IV-1 and IV-2 suggest that the use of one-third of the GVAP would not be equal to the net revenues in any one year or over a period of longer duration. The relationship between a specified proportion of the GVAP and net revenue does not seem to exist. The hypothesis remains unsupported.

Test B: Compare estimates of net revenue with estimates of
tenant rents

The second test is suggested by the fact that the government appears to have assumed that tenant rents were equal to net revenue. It is possible to examine this hypothesis and suggest the validity of the relationship by comparing tenant rents to estimates of net revenue developed by subtracting capital and labor production costs from the value of agricultural production.

The Punjab Board of Economic Inquiry also calculated net revenues and tenant rents. It compared rent payments and net revenue estimates for various types of agricultural land for the year 1941-42. Its findings were thought to be applicable to other years as well, since the same definition of net revenue and the same procedures for determining tenant rents were used in its study as were used in other years for tax purposes.

The rent data were derived from the same farms which were used for the purposes of determining the GVAP and net revenue. The rent

estimates uncovered by the survey are presented in column 2 of Table IV-3; their size as a percentage of net revenue is in column 3 of the same table. The data indicate that there were substantial variations from one area to another in the relationships of rent and net revenue. Furthermore, the rent estimates appear to be often higher than the net revenue estimates.

TABLE IV-3
NET REVENUE ESTIMATES COMPARED WITH TENANT RENTS-1941

	Net Revenue ^a (1)	Tenant Rents ^a (2)	Tenant Rents as Per cent of Net Revenue ^b (3)
Irrigated Areas	Rupees Per Acre	Rupees Per Acre	Per cent
Mountains	65.82	69.27	105.2
Sub-Mountains	24.60	37.43	152.1
Central Punjab	29.12	31.26	107.3
Jumna River Zone	39.39	19.16	48.6
Southeastern Dry Tract	25.04	15.77	62.69
Unirrigated Areas			
Mountainous	1.15	8.32	723.5
Sub-Mountains	8.94	22.99	257.2
Central Punjab	14.85	13.92	93.7
Jumna River Zone	-0.86	13.08	na
Southeastern Dry Tract	-2.06	na	na

^aData in column 1 and 2 are from Board of Economic Inquiry, Punjab, p. 26.

^bColumn 2 divided by column 1 and then multiplied by 100.

^{na}Statistics not available.

This suggests that the use of tenant rents may over-state net revenue in many cases; thus there is no tendency toward verifying the hypothesis. No annual data on rents were available by which the average relationship of rent and net revenue could be determined.

Test C: Compare estimate of net revenue with the Settlement Officers' estimates of net revenue

The third test is suggested by the fact that the settlement officers were the ultimate determiners of the tax base. The officers were directed to use the GVAP or tenant rents, but they had the authority to adjust the tax base at their own discretion. The government appears to have assumed that the settlement officers could accurately estimate net revenue. The validity of this method of estimating net revenue can be evaluated by comparing the revenue officers' estimates of net revenue with the amounts of net revenue developed for this study; they should be identical.

A search of the literature reveals that no such comparisons have been recorded. It is possible, however, to estimate precisely the settlement officers' own estimates of net revenue; since the taxes were supposed to be a specific proportion of the estimates of net revenue, the level of the estimates can be determined by multiplying the amount of the taxes by $1/\text{tax rate}$. This has been accomplished for this study annually from 1913-14 to 1941-42 and for the various types of areas in the Punjab for 1941-42. These periods were selected to maintain comparability with the other types of estimates of net revenue and because data on tax receipts were available.

The 1941-42 settlement officers estimates for various types of areas are presented in column 2 of Table IV-4. Their relationship to net

revenue is presented in column 3 of the same table. The data suggest that in some types of areas there may have been wide variations between the settlement officers' estimates and actual net revenue; the settlement officers' estimates appear to be higher than actual net revenue in some of the unirrigated areas. However, they are generally lower in the irrigated areas.

TABLE IV-4

NET REVENUE ESTIMATES COMPARED WITH THE SETTLEMENT OFFICERS' ESTIMATES

	Net Revenue (1)	Settlement Officers' Estimates of Net Revenue ^b (2)	Settlement Officers' Estimates as Per cent of Net Revenue ^c (3)
Irrigated Areas	Rupees Per Acre	Rupees Per Acre	Per cent
Mountainous	65.82	19.60	29.8
Sub-Mountains	24.60	18.80	68.3
Central Punjab	29.12	11.56	39.7
Jumna River Zone	39.39	13.72	34.8
Southeastern Dry Tract	25.04	7.08	28.3
Unirrigated Areas			
Mountainous	1.15	5.52	480.0
Sub-Mountains	8.94	10.64	119.0
Central Punjab	14.85	5.00	33.7
Jumna River Zone	-0.86	9.64	na
Southeastern Dry Tract	-2.06	na	na

^aData in column 1 from Board of Economic Inquiry, Punjab, p. 26.

^bData in column 2 computed by dividing the 1941 land tax data reported in Board of Economic Inquiry, p. 26, by the 1941 land tax's rate of taxation.

^{na}Statistics not available.

Annual net revenue estimates of the settlement officers for the whole Punjab region are presented in column 5 of Table IV-2. The data suggest that the settlement officers' estimates are smaller than the amount of net revenue plus the return to the occupant's labor for 12 years and larger for 16 years. The data, therefore, do not support the hypothesis. Furthermore, the difference between the two estimates would obviously become wider if the returns to the occupant's labor are subtracted from column 3 of Table IV-2.

Test D: Compare the settlement officers' estimates with tenant rents and one-third of the GVAP

The fourth test is suggested by the fact that the settlement officers were directed to use tenant rents as a basis for estimating net revenues in 1941-42. Their estimates should be identical to the estimates of tenant rent. A comparison of the settlement officers' estimates with tenant rents has been made for this study for various types of areas with the data in column 2 of Table IV-3, column 2 of Table IV-4. In every type of area the settlement officers' estimates were lower than tenant rents, even though they were supposed to be based on them. The hypothesis is, therefore, not supported by the comparisons; instead, it appears that possibly the officers either did not accurately estimate tenant rents or did not use them as their instructions directed. No data were available for other years to indicate whether any inaccuracies would have been averaged out over the period of time.

The Relationship of Land Taxes to Net Revenue

The analysis above has suggested that the relationship between net revenue and other items such as tenant rents and the GVAP assumed by the

government might not have been valid and that, in any case, the settlement officers may have inaccurately estimated the items to which the net revenue was supposed to be related. Therefore, the amount of land taxes collected may have differed from the amount which would have been collected had the government taken the proportion of net revenue which it claimed it was taking. The following hypothesis deals with the relationship of land taxes and net revenue.

Hypothesis 2: Land taxes were equal to the specified proportion of net revenue at all times

The procedures by which settlement officers were to assess land taxes specified that the taxes were to be a specific proportion of net revenue. It is possible to examine this relationship of land taxes and net revenue by comparing the size of the land taxes to the size of the net revenue estimates. Such a comparison has been made for this study. The comparison covers the years 1913-14 through 1941-42; the data compared are average annual estimates in terms of 1913-14 rupee prices. The data are presented in Table IV-5.

Examination of the data in Table IV-5 indicates that tax collections differed widely in relation to the estimates of net revenue from one year to the next. In the year 1915-16, for example, the return to land and occupant's labor was negative. On the other hand, this variation ranges between 14.31 per cent of the net revenue plus the return to the occupant's labor for the year 1919-20 and 145.80 per cent for the year 1920-21. The land taxes appear to be unrelated to the size of net revenues. Statistically speaking, the correlation coefficient between the land tax collections and the net revenue estimates during the period from 1913-14 through 1941-42 is .111, which is insignificant at 1 per cent level. The data, therefore, do not

TABLE IV-5
LAND TAXES AND NET REVENUE IN 1913-14 PRICES

Year	Land Tax ^a (1)	Net Revenue Plus Return to Occupants' Labor ^b (2)	Net Revenue and Return to Occupants' Labor Minus Land Taxes ^c (3)	Land Tax as Per cent of Net Revenue and Returns to Occupants' Labor ^d (4)
	Millions of Rupees	Millions of Rupees	Millions of Rupees	Per cent
1913-14	44.5	115.48	70.98	38.53
15	43.8	187.03	143.23	23.42
16	45.7	-1.81	-47.51	--
17	46.7	73.23	26.53	63.77
18	45.9	158.91	113.01	28.88
19	29.0	132.71	103.71	21.85
20	34.6	241.82	207.22	14.31
21	26.9	18.45	-8.45	145.80
22	30.7	199.95	169.25	15.35
23	53.4	203.83	150.43	26.20
24	57.8	221.55	163.75	26.09
25	39.4	75.77	36.37	52.00
26	38.7	96.53	57.83	40.09
27	43.2	121.90	78.70	35.44
28	42.6	65.20	22.60	65.31
29	42.4	55.04	12.64	77.03
30	55.1	168.33	113.23	32.73
31	91.0	134.23	43.23	67.79
32	82.4	97.28	14.88	84.70
33	68.7	117.39	48.69	58.52
34	90.0	72.11	-17.89	124.81
35	78.8	139.76	60.96	56.38
36	78.8	143.87	65.07	54.77
37	69.1	199.51	130.41	34.63
38	not available	not available	not available	not available
39	71.4	112.60	41.20	63.41
40	66.5	198.24	131.74	33.55
41	70.4	160.72	90.32	43.80
42	54.9	209.62	154.72	26.19

^aAnnual money land tax data from Table II-1, p. 51, deflated by the price index of Appendix A, Table A-8.

^bData from column 3 of Table IV-2.

^cColumn 2 minus column 1.

^dColumn 1 divided by column 2 and then multiplied by 100.

support the hypothesis that the land tax collections were based on net revenue estimates.

The analysis in the section above also suggests that there may have been inaccurate estimates of the items upon which the net revenue estimates were to be based and inappropriate relationships between these items and actual net revenue. The existence of this situation may suggest that at times the taxes exceeded net revenue. Whether this occurred and the degree, if any, to which it occurred can be examined by comparing the tax and net revenue estimates and subtracting the tax estimates from the net revenue estimates as shown in Table IV-5.

The results indicate that during twelve years, the land tax took more than 50 per cent of this combined return. Over the whole period, land tax collections took on the average 41.5 per cent of net revenue plus the return to occupant's labor. It is particularly noteworthy that the land tax claimed on the average, 52.2 per cent of the net revenues plus return to occupant's labor between 1928-29 and 1941-42 against 25 per cent of only net revenues laid down in the government's policy (See Chapter II).

Therefore, it can be concluded from the preceding analysis that the land tax collections were not based on net revenues, that the landowners paid 41.5 per cent of their income (net revenue plus return to labor) during 1913-14 through 1941-42, and that the tax claimed not only economic rent but also a substantial part of return to occupant's labor and certainly a far greater share than the government policy laid down.

These general findings are supported by similar conclusions by Dr. Paul W. Paustin in his 1928 study of irrigated areas in the Punjab:

. . . net surplus after paying all costs of production and the Government dues in the form of water rates and land revenues /land taxes/ leave but a small income for the peasant's labor and often no return for his capital investment in land, implements, and cattle. Apparently the peasant receives little more than sufficient to permit him to carry on his industry on the barest minimum subsistence.²

The effects on a tax exceeding economic rent, which might be expected in an under-developed country facing such a situation, appear to have developed in the Punjab.

The Primary Effects of Inflexible Land Taxes Which Tend to Exceed Net Revenue

The existence of such a situation would probably have left landowners with a paucity of choices of alternative actions on where to cut out-of-pocket costs so that they could pay the tax. The returns to labor can be assumed to have been close to a subsistence level, so landowners could not cut consumption spending from the returns to their labor and paid for the taxes from their increased savings. They could not stop paying variable capital costs without ceasing all production; all they could do to meet that part of the tax which exceeded net revenue is meet their variable costs, including subsistence consumption, and then stop maintaining their invested capital (other than made in-kind) or borrow.

That the landowner could be expected to be drawn into some relationship with moneylenders if his returns were not enough to cover at least his variable costs was almost certain, especially when the crop yields were low. The land tax, being inflexible, had to be paid:

²Paul W. Paustin, Canal Irrigation in the Punjab (New York, 1930), p. 157.

Since I have been Commissioner of this Division, the Sailkot district, during Colonel Montgomery's regime (1888-94), had a Collector and several Tahsildars possessed of all the exceptional qualifications noted above, and yet in those years I cannot discover that any revenue was suspended or remitted. In fact, for the whole district, the revenue of which is now fifteen lakhs 1,500,000, I make out that in the last thirty years only Rs 6450 have been suspended and Rs 1694 remitted, all on account of damage done by hail. In that period there have been several prolonged fodder famines and quite a dozen poor harvests.³

Digby also described the taxes' inflexibility:

Gurgaon was, in 1877, a district with 700,000 inhabitants . . . In 1877 rents land taxes were raised . . . Rains failed, crops were ruined, the government demand was nevertheless exacted, with these consequences, as officially admitted:

At the end of five years it was found that 80,000 people had died; 150,000 head of cattle had perished; 2,000,000 rupees of debt, to pay the Government rents, incurred.⁴

The landowner confronted with such circumstances had no choice; he was forced either to sell his land or borrow to raise cash, since non payment meant the immediate surrender of the land without recompense. This would mean the loss of any market value for his land and fixed capital. Furthermore, it is not likely, in face of the traditional emphasis on land ownership at all costs, that the initial decision would be for sale; that would only come if future borrowing became impossible.

That landowners would first not maintain their fixed capital and then borrow only the remainder is probable in view of the lending practices which developed as desperate landowners sought to retain control of their land. When they did borrow, it was inevitably from

³S. S. Thorburn, quoted in William Digby, Prosperous British India (London, 1901) p. 299.

⁴Ibid., p. 91.

the village moneylenders. These moneylenders not only charged high interest rates which varied from eighteen per cent upward, but they also used fraudulent practices to entrap the uneducated peasants. Regarding the moneylender, it was said:

His greed for grain, the shameless effrontery with which he adds 50 per cent to a debt, calls total principle, causes his debtor to execute a bond for that principle with interest at 36 per cent per annum more, a year or two after strikes a balance against his debtor and cajoles or wearies him into mortgaging to him an ancestral plot of good land or its produce, on the understanding -- carefully excluded from the deed -- that mortgagor is to remain in cultivating possession.⁵

Whatever the cause, it appears that moneylending became so attractive due to the dire straits of the peasant small-holders that the mortgage which had been rare in the period prior to 1847 appeared in every village by the 1880's.⁶ Darling specifically notes:

Mortgages amounted to 143,000 acres a year in the first period [1866-1874], and to 212,000, 296,000, 590,000 and 554,000 acres a year in the succeeding quinquennial periods.⁷

The Land Tax as a Cause of Indebtedness: An Empirical Study. It may be that the land taxes caused the increased indebtedness. The possibility that this occurred has been tested for this study by a multiple correlation analysis of the land tax, per capita gross income, and the yearly changes in agricultural indebtedness for the period between 1913-14 and 1935-36. The time period was selected because of

⁵Thorburn, p. 37.

⁶Darling, p. 173.

⁷Darling, cited in H. Clavert, The Wealth and Welfare of the Punjab (Lahore, 1922), p. 134.

the availability of statistical data.

It was hypothesized that agricultural indebtedness was determined jointly by the land tax and by the consumption needs caused by low per capita income. Consumption is included because it is possible that the consumption needs of the landowners when per capita real income fell could have forced them to borrow from the village moneylenders or fail to maintain their fixed capital. If the consumption caused borrowing, or vice versa, it will show up in the statistical technique to be used.

The model takes the form of:

$$B = a + bT + cP$$

(where B is the annual changes in land in thousand of acres under mortgage, T is the percentage of gross value of agricultural products paid as land tax in the preceding year, P is the per capita income of the preceding year, and a, b and c are constants). It is assumed that the tax amount and per capita income, if they cause borrowing, will show up in the official statistics in the following year, since it is unlikely that the institutional arrangement will reflect these changes in the same year. This form of a model is used because it is hardly likely that the borrowing will cause changes in the land tax, since the tax assessment institutional arrangement has no relation to borrowing.

The model gives the following results when $N = 23$:⁸

$$r_{12}^2 (B,T) = .461, r_{13}^2 = .082, r_{23}^2 = .100$$

$$r_{12.3}^2 (B,T:P) = .419$$

Assuming a linear relation among variables and joint normal distributions, the land tax as a per cent of output value explains 41.9

⁸ $r_{12}^2, r_{13}^2, r_{23}^2$ are simple correlations; $r_{12.3}^2$ is a partial correlation.

per cent of the variation in changes in agricultural indebtedness that is unexplained by the level of population to be supported by the output. The latter adds only 4.4 per cent explanation, an insignificant addition.

This finding is corroborated by:

$$B = -35.6 + 18.37T - 1.26P$$

$$R^2 = .463$$

$$r_{12}^2 = .461$$

The data for the years 1913-1935 reject the hypothesis at the .01 level that new agricultural net indebtedness was not associated with the level of the land tax as a proportion of output value independently of the level of population.⁹ It is, therefore, concluded that the land tax caused indebtedness, and the farmers obtained loans on the security of their land. This supports the finding in Table IV-3 which shows the taxes exceeding net revenue, since it appears reasonable, in view of the effects of indebtedness discussed below, that tax payments would have been made from net revenues wherever possible.

The Second Order Effects of Inflexible Land Taxes Which Tend to Exceed Net Revenue

The land tax apparently provided lucrative opportunities for the initial monied classes to use their incomes and wealth to loan money to the peasants for tax payment purposes rather than to make real capital

⁹The regression equation is $B = -35.6 + 18.37T^{**} - 1.26P$. The simple correlation (r_{12}) is .679** and the partial correlation ($r_{12.3}$) is .648**. Asterisks denote that the values are significant at .01 level.

investment for their own property; they then eventually took over the land and combined it with their original holdings since, once indebted due to a combination of inflexible taxes and flexible incomes, farmers were usually caught in the vicious circle of high interest and low prices and were ruined beyond redemption as successively larger borrowings were required to pay the debts coming due. Furthermore, the indebtedness had side effects. The mortgage usually required the indebted farmers to sell their crops to the moneylender to liquidate their debts.¹⁰ The value of the crop was credited to the farmers at the price prevailing at the harvest time, a price which was necessarily low owing to all the produce being thrown on the market at the same time. The prices usually rose immediately thereafter, giving a rich reward to the moneylender-speculator.¹¹ The result was the continued loss of peasant landholdings after a period of impoverishment and capital consumption and a subsequent move to tenant and laborer relationships with the land as it was taken over or sold in payment of accrued debts. Said S. S. Thorburn of the years he spent as a tax official:

During those years I watched the growth of what I have called "our system." I saw family after family enmeshed by it [debt] and gradually sink under it, until finally they retained but a precarious tenant-right over their lost fields . . .¹²

A possible example of this effect is presented in Table IV-6. It indicates that there was an increase in total farm area owned by owners

¹⁰Trevaskis, The Punjab of Today, II (Lahore, 1932), p. 110.

¹¹Ibid.

¹²Thorburn, "Agricola Redivivus", The Asiatic Quarterly Review, XXXII (July, 1901), p. 63.

of 50 or more acres at the expense of almost every other class of owner.

TABLE IV-6
SIZE OF FARMS, 1925-1939^a

Size	Percentage of Total Farms		Percentage of Total Area Cultivated by Farm Size	
	1925	1939	1925	1939
Under 1 acre	17.9	20.2	1.0	0.8
1-3 acres	25.5	28.6	4.4	5.2
3-5 acres	14.9	14.9	6.6	6.2
5-10 acres	18.0	16.9	15.1	13.1
10-15 acres	8.2	7.3	11.5	9.1
15-20 acres	4.3	3.6	8.4	7.2
20-25 acres	2.7	2.2	6.8	5.6
25-50 acres	4.8	3.9	20.4	14.8
Over 50 acres	3.3	2.4	25.7	38.0
Total	99.6	99.8	99.9	99.9

^aSir William Roberts and Kartar Singh, A Text Book of Punjab Agriculture (Lahore, 1951), pp. 512-513.

The increase in tenancy is reflected in Table IV-7. The data in the table suggest that the land area cultivated by tenants increased approximately 28 per cent between 1901-02 and 1936-37, whereas the number of farms rented to them increased by 40 per cent within the same period. Thus, the consolidation of ownership appears to have resulted in even smaller parcels of land being farmed than were being farmed prior to the consolidation.

The assignment of taxes at levels which would appear to lead inevitably to the indebtedness and subsequent loss of land by the landowners provoked violence. At one point, the taxes so exceeded the ability of the small landowners to obtain cash with which to pay that an arbitrary increase in the land tax sparked an unsuccessful revolt of the

TABLE IV-7

CULTIVATING OCCUPANCY OF LAND -- NON-OWNERS, 1901-1936^a

Year	Number of Tenant Occupied Farms	Acreage Rented to Non-owners
1901	5,162,498	13,631,164
1906	5,377,409	14,025,970
1911	5,521,367	14,812,531
1916	5,798,218	14,832,884
1921	5,914,102	15,653,794
1926	6,235,003	16,467,848
1931	6,808,814	16,633,722
1936	7,142,093	17,644,359

^aRai, Agricultural Statistics of the Punjab 1938-39, p. 14.

Punjab peasantry.¹³ In the House of Commons, in England, the small body of ex-officials of Indian Civil Services assured the Secretary of State that the cause and the sole cause of the disorder was agrarian,¹⁴ in other words, that the people of the Punjab were intensely incensed by the continued enlargement of the land tax. The Secretary of State and the Punjab Government were not prepared to accept the charge, however, and called the uprising a sedition.¹⁵ The judge who acquitted the alleged sedition leaders took note of the cause of the disorders in his decision:

Mr. Guardasram urged the people to appeal to the Government in regard to the enhancement of revenue [increased land taxes], and we have important facts that as a result of the meeting a memorial to His Honour the Lieutenant Governor regarding the enhanced assessment was actually drafted.¹⁶

¹³C. J. O'Donnell, The Causes of Present Discontent in India (2nd Impression, London, 1908), pp. 92-93.

¹⁴Ibid., p. 94.

¹⁵Ibid.

¹⁶Ibid., p. 101.

The Government officials, however, continued to rationalize their use of the land tax both in concept and in absolute size.

British officials frequently cite figures to prove that the burden is lighter than it was in the old days of native rule . . . But there is a difference. The Indian rulers were usually paid in kind on the basis of each year's harvest. They shared the peasant's prosperity, but they also suffered with him in his periods of adversity. The burden was heavier, but it was more equitably distributed.¹⁷

Probable Production and Price Effects of the 1849-1947 Punjab Land Tax

The initial effect of the land tax on agricultural prices and production in the 1840's may have been lower prices and more total production as the marginal costs were reduced. In the long run, this effect disappeared when the tax became a part of the long-run marginal cost. The production-increasing effect in the long run, however, could conceivably have been continued due to more intense use of labor as the size of farms declined; since it is possible to believe that the additional labor would not have been added if their marginal physical product were zero or below, the additional labor would have been expected to have, other things being equal, the effect of raising total production. A tendency toward increased production should have the effect of lowering prices; however rising demand or the effects of the increases in fixed costs caused by increases in the land tax liabilities counteracts this trend. A trend toward land consolidation may appear to favor increased production by permitting larger and more efficient farms, unless the former owners continue their ancient practices as tenants.

¹⁷ Smith, pp. 173-174.

However, other things were probably not equal. Tending to offset these effects is the possibility that decreased amounts of capital may have been available in the long run. There are reasons to believe that this off-setting lack of capital effect may have occurred. First, the farms may have been decapitalized by the prior owners during a futile period of attempting to hold on to their land in the face of high levels of land taxation and the obvious perils of indebtedness. Second, peasant landowners, even if not in debt, had constant cash tax liabilities and thus, when confronted with uncertain levels of production and prices, they may not have dared to undertake any fixed commitments for capital which would require future tax payment at a time when they might have no cash. Third, the new, large landowners may have had no interest in making real capital investments on their increasing landholdings in view of the more lucrative returns they could receive from moneylending:

. . . the rarest figure in the modern Indian countryside has been a genuine capitalist producer -- that is a producer who invests capital in agriculture and strives to secure a maximum profit primarily from the efficiency with which he handles his labour force and his land in productive process. Rather, the [big] Indian landowners have found rent and usury, as opposed to capitalistic profits, easier, safer, more congenial, and more lucrative.¹⁸

Table IV-8 below contains per-acre production data for wheat for irrigated and unirrigated areas for the Punjab from 1906-7 to 1935-36. Index numbers based on a ten-year moving average of wheat production per acre have also been constructed to show the trends of productivity. The data support the contention that decapitalization may have occurred, since the production trend on unirrigated areas shows a slight but

¹⁸Thorner and Thorner, p. 111.

TABLE IV-8

WHEAT PRODUCTIVITY TREND, 1906-07 to 1935-36^a

	Irrigated Areas		Unirrigated Areas	
	Yield Per Acre Lbs. (a) (1)	10 Years Moving Average Index Number (b) (2)	Yield Per Acre Lbs. (c) (3)	10 Years Moving Average Index Number (d) (4)
1906-7	759		489	
8	876		375	
9	992		567	
10	1061		652	
11	1005	100	670	100
12	1032	101	559	97
13	972	102	454	99
14	922	102	512	97
15	936	102	623	95
16	762	100	238	87
17	850	102	338	88
18	993	101	500	91
19	959	102	445	93
20	1101	100	562	88
21	774	101	248	92
22	1193	102	594	94
23	889	99	605	92
24	1021	99	602	91
25	795	99	410	92
26	879	101	478	96
27	947	98	420	92
28	694	98	434	90
29	957	97	382	86
30	1064	98	577	87
31	959	99	472	87
32	905		416	
33	933		459	
34	872		400	
35	945		493	
36	948		467	

^aData in columns 1 and 3 (yield per acre) have been computed from absolute figures given in Rai, Agricultural Statistics of the Punjab 1901-2 to 1935-36, p. 61.

gradual decline over a thirty year period. The yield per acre on irrigated areas is fairly constant and did not increase. Had there been no irrigation, it is likely that the productivity trend in this area

might also have been declining in conformity with the unirrigated fields. A possible explanation for the almost constant yield in unirrigated areas is that the increasing population in the rural sector might have been employed and the fields intensively cultivated.

Data presenting similar results are also found in Table IV-9. This table contains data on the GVAP per acre. The data are presented in constant money units both annually and in terms of a ten-year moving average. They indicate that real production for the period from 1913-14 to 1941-42 for all crops per cultivated acre remained almost constant for twenty-eight years despite the increased application of labor.

The possible decrease in capital suggested by the absence of production increases fits neatly with the analysis above which suggested that land taxes may have exceeded net revenues and resulted in indebtedness or decapitalization; had production risen, the initial analysis of taxes and net revenue would not have fit the circumstances brought out in this section.

TABLE IV-9

VALUE OF AGRICULTURAL PRODUCTS PER ACRE (IN 1913-14 PRICES)
1913-14 THROUGH 1941-42

Year	Value of Agricultural Production Per Acre ^a (1)	Ten-year Moving Average of GVAP ^b (2)
1913-14	21.55	
15	23.22	
16	17.25	
17	19.63	
18	22.15	21.83
19	23.38	22.14
20	25.63	21.79
21	18.07	22.12
22	23.77	22.29
23	23.73	22.08
24	24.56	21.59
25	19.71	21.31
26	20.57	21.67
27	21.33	21.33
28	19.53	21.08
29	19.04	20.56
30	22.75	20.80
31	21.75	20.92
32	20.36	21.13
33	21.22	21.30
34	19.41	31.79
35	22.01	21.74
36	21.83	21.95
37	23.44	
38	NA	
39	21.23	
40	23.95	
41	22.22	
42	23.81	

^aSee Appendix A-5, column 3.

^bComputed with data in column 1.

CHAPTER V

SUMMARY AND CONCLUSIONS

The land tax has been a major source of tax revenues in the Punjab region of India for many years. The present form of the tax was developed from 1849-1947. The tax system and the structure of the economy it falls upon retain today the same form they had during those years.

Despite the importance of the tax and the usefulness of examining the past in order to obtain some insight into the present, a search of the literature reveals that no detailed studies of the tax have ever been made to analyze its operation and impact on agricultural production. This study, which has made such an evaluation in an effort to partially fill the gap left by the previous lack of scrutiny, was undertaken in the hope that it would help explain and measure the influence of one of the major factors which have shaped the present state of the Punjab economy. The study is thought to be particularly appropriate because the tax and economic circumstances in the period being analyzed are very similar to those which exist at the present time and because the tax was a major factor in shaping the present economic circumstances.

The general character of the region and the pre-1849 tax system in the area were described in order to provide the background needed for understanding of the 1849-1947 tax. A detailed description of the procedures used to assess and collect the tax followed; it was shown that

various administrative changes were put into effect through the years, but that the general nature of the tax assessment and collection procedures remained unchanged. This was followed by a discussion of theoretical considerations which were related to the tax concepts and practices. Finally, effects of the tax as it was designed and as it was actually used were identified and analyzed.

The analysis suggests that the data lack sufficient reliability for modern statistical testing; it also suggests that the legal relationship of the land tax to net revenue of the land was largely un-enforced. In fact, actual taxation seems to have been left to the ability of the tax collector to raise as much as politically feasible, even to the point where tax collections may have exceeded any apparent net revenue. A major effect of the tax seems to have been that it periodically forced the peasant landowners into the hands of the moneylenders in an effort to stave off the loss of the land for non-payment of taxes. Then, once entrapped in the high interest rates and low prices which this brought, it appears that many went under, and all or part of their land was then sold.

The initial monied class apparently was able to make handsome profits with high rates of interest, then acquired the land as the original owners were forced to give it up. Thus, some landholdings got smaller and some got larger. It is probable that the land was forced into liquidation after all other measures to raise revenues including capital consumption had been exhausted. Furthermore, it appears that when the decapitalized land was combined in larger holdings, no capital was added by the new owners because of the high profits from putting money into alternatives, such as money lending. Furthermore, it appears

that instead of operating larger, more efficient farms, the large holdings were broken into even smaller farms and rented to tenants. Thus, the average size of each farm fell, even though more large land-owners developed, tenancy increased, and capital was consumed and not replaced. It is not surprising, therefore, that production per acre did not climb during a substantial portion of this period of time, even though the number of rural residents, and thus the supply of agricultural labor, rose.

Since the tax, the economy, and the economy's institutions remain intact today, this situation may be continuing. It is reasonable to expect that the same effects are going on at the present time. Since the population is growing and the use of the tax in the past apparently adversely affected production, there is reason to hope that the current government of the Punjab will not wait another 116 years before determining the desirability of making substantial reforms.

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Appendix A

DERIVATION OF ANNUAL ESTIMATES OF AGRICULTURAL NET REVENUE IN THE PUNJAB, 1913-1914

The Gross Value of Agricultural Production in 1913-14 Rupees.

The GVAP in 1913-14 rupees on all acreage under cultivation in the Punjab was obtained in the following manner for each year.

1. Estimates of each year's total annual production for each of the Punjab's ten major crops were available (See Table A-1).
2. These estimates for each year were then multiplied by each crop's 1913-14 (base year) harvest-time farmer-selling-to-wholesaler prices shown in Table A-3. These prices were used because they were the ones which the settlement officers were supposed to use when they calculated the GVAP.
3. The ten resulting individual crop values of production for each year were then summed to get each year's total gross 1913-14 rupee value of production on the 75-80 per cent of the acres covered by the ten major crops (See Table A-4).
4. This 75-80 per cent total value was then filled out to yearly estimates of the total gross 1913-14 rupee value of production on all acreage under cultivation in each year. The filling out to 100 per cent of the value of production on land under cultivation was accomplished by: first, dividing the 75-80 per cent total value by the sum of the acreage under the ten

main crops; second, the resulting per acre average values of production for the acreage planted in the major crops was assumed to apply to all the land under cultivation in crops other than the ten major crops; third, the total acreage under cultivation was multiplied by the per acre gross deflated values of production to yield a total gross deflated value of production estimate for all land (See Table A-5).

Cost of Production.

The estimates of the annual total cost of cultivation in 1913-14 prices exclusive of the return to the occupant's labor, were computed in the following manner:

1. Data on the average per acre costs of capital and hired labor used in Punjab agriculture are available for 1956-57 in money terms (See Table A-10).
2. The money costs per acre were reduced to 1913-14 terms by dividing them by a weighted price index of agricultural production index numbers, i.e. $2150.88/543.68 = 396$ (See Table A-9).
3. The capital and hired labor costs per acre were assumed to be constant from 1913-14 to 1956-57. The other assumptions made in the computations of the cost are:
 - (a) Costs which vary with the output per acre (irrigation, seed, and fertilizer) are small in proportion to other costs such as bullock power.
 - (b) Bullock power (the main cost: 52 per cent), seed, fertilizer, machinery, irrigation charges, the need for

artisans, and hired labor all vary with the acreage planted.

- (c) The price of the various cost items varies with the general level of agricultural prices.
 - (d) The technology has not been much different over the period from 1913, especially in regard to bullock use.
 - (e) Overhead costs are small yearly, and such capital has little salvage value.
4. The total 1913-14 rupee capital and hired labor costs of production in 1913-14 for the Punjab for the years covered by the study were obtained by multiplying the per acre 1913-14 rupee costs by the number of acres sown (See Table A-11).

Weighted Price Index.

To obtain the weighted price index, the following procedure was used:

- (a) The annual harvest prices of the ten main crops from 1913-14 were available (See Table A-6).
- (b) The estimates of each year's total annual production for each of the Punjab's ten major crops were multiplied by each crop's annual harvest price. The ten resulting individual crops value of production in current rupees for each year was then summed to get the year's total money value of production on the 75-80 per cent of the acreage covered by the ten major crops (See Table A-7).
- (c) The weighted price index was finally obtained by dividing the total current value of each year's ten major crops by the

total value in 1913-14 rupees of the same crops for each year of Table A-4, column 11. The result is stated in Table A-8.

TABLE A-1

ANNUAL PRODUCTION DATA OF THE TEN MAIN CROPS 1913-14 TO 1941-42^a

Year	Rice Thou. Tons (1)	Wheat Mill. Tons (2)	Barley Thou. Tons (3)	Jowar Thou. Tons (4)	Bajra Thou. Tons (5)
1913-14	369	2.8	288	119	302
15	356	3.4	377	118	346
16	368	2.2	228	109	150
17	591	2.6	286	120	514
18	478	3.2	424	59	312
19	354	2.6	333	43	105
20	515	3.4	378	200	446
21	419	2.0	103	105	199
22	414	3.6	297	171	391
23	445	3.2	365	118	424
24	444	3.5	410	132	395
25	436	2.6	253	115	362
26	492	2.9	218	100	278
27	432	2.9	234	107	363
28	465	2.3	217	126	333
29	429	3.1	267	90	247
30	496	3.8	263	90	282
31	489	3.1	161	75	434
32	419	2.8	161	96	460
33	444	2.8	150	117	326
34	527	2.8	148	77	377
35	448	3.0	168	102	355
36	465	3.1	175	89	390
37	541	3.4	206	123	361
38	not available	3.7	206	89	239
39	466	3.2	151	69	218
40	442	3.8	260	64	244
41	463	3.3	219	98	477
42	458	3.9	227	94	443

^aData in column 1 have been taken from Rai, Agricultural Statistics of the Punjab 1901-02 to 1935-36, p. 60; Agricultural Statistics of the Punjab 1936-37, p. 3; Agricultural Statistics of the Punjab 1938-39, p. 3; Agricultural Statistics of the Punjab 1939-40, p. 4; and Agricultural Statistics of the Punjab 1940-41 to 1943-44, p. 8. Data in columns 2 -- 9 are from W. Burns, Technological Possibilities of Agricultural Development of India (Lahore, 1944), pp. xxii-xli.

TABLE A-1 (Continued)

Maize Thou. Tons (6)	Gram Thou. Tons (7)	Rape and Mustard Thou. Tons (8)	Sugar Thou. Tons (9)	Cotton Thou. Tons (10)
441	578	167	326	93
283	1289	188	268	74
464	454	146	278	30
461	856	164	352	54
319	1509	196	437	48
399	465	116	293	73
496	1009	178	428	111
346	361	94	315	93
380	1143	234	278	49
391	1510	241	414	64
369	1116	196	418	102
336	1149	209	330	142
311	760	125	303	141
346	1199	147	349	93
425	858	150	381	92
347	726	162	289	94
397	763	151	204	125
412	910	141	302	119
380	1080	184	368	96
348	894	151	444	99
288	1385	131	364	166
412	798	101	326	169
382	954	113	360	220
392	953	154	466	260
406	640	105	389	204
384	375	110	229	197
405	499	148	318	182
448	700	177	470	217
463	649	157	412	219

TABLE A-2

ANNUAL ACREAGE UNDER TEN MAIN CROPS 1913-14 TO 1941-42^a

Year	Rice Thous. Acres (1)	Wheat Mill. Acres (2)	Gram Mill. Acres (3)	Barley Thousand Acres (4)	Jowar Thous. Acres (5)
1913-14	801	8.5	2.8	970	1248
15	794 ^b	9.9	5.2	1308 ^b	1276 ^b
16	746 ^b	9.0	3.7	1040 ^b	1001 ^b
17	1064	9.5	5.1	1153	1494
18	1004	9.9	6.0	1475	825
19	737	7.7	2.0	865	653
20	963	8.8	4.1	1204	1020
21	921	7.8	2.2	631	922
22	821	8.8	5.1	1112	1214
23	929	9.6	5.4	1173	951
24	885	9.7	4.2	1246	985
25	780	9.7	5.7	936	1054
26	968	9.5	3.7	804	923
27	884	9.4	4.7	767	983
28	941	9.0	4.1	835	1025
29	884	10.0	4.2	1340	949
30	975	10.0	3.2	921	1108
31	977	9.3	4.1	656	890
32	799	9.1	5.5	629	1014
33	978	8.6	3.9	618	1113
34	1035	9.8	6.6	709	875
35	956	9.0	3.6	612	843
36	971	9.3	4.7	666	821
37	1039	9.4	4.9	740	928
38	not available	9.9	3.8	777	838
39	977	9.5	2.3	575	878
40	951	9.6	2.4	730	778
41	892	9.9	3.5	799	877
42	1100	10.0	3.5	804	772

^aData in columns 1 through 10 are from the same sources as Table A-1. Data in column 11 have been obtained by summation of figures in columns 1 through 10.

^bNot included in column 11 for lack of comparable data.

TABLE A-2 (Continued)

Bajra Thous. Acres (6)	Maize Thous. Acres (7)	Rape and Mustard Thous. Acres (8)	Sugar Thous. Acres (9)	Cotton Thous. Acres (10)	Total Area Un- der Ten Main Crops (in Mill. Acres (11)
2829	1082	1003	411	1826	21.47
2738	1047 ^b	1047	366	1688	20.94
1908	1184 ^b	1129	347	827	16.91
3033	1270	1016	414	1065	25.11
2543	1219	1259	503	1643	26.37
1562	1151	660	474	1418	17.22
2675	1156	891	482	2071	23.36
2422	1063	583	457	1957	18.96
3323	1112	1464	373	1149	24.47
3119	1123	1286	497	1273	25.35
2850	1050	1141	483	1749	24.29
2585	922	1269	396	2326	25.67
2563	931	752	390	2702	23.23
2692	975	913	448	2524	24.29
2718	1085	951	499	1841	23.00
2480	1048	1722	401	2509	25.53
3365	1142	1074	307	2209	24.30
3236	1095	888	426	2164	23.73
3233	1004	1150	475	2160	25.06
3403	1034	1158	558	1890	23.15
3356	1056	1099	466	2449	27.45
3043	1136	673	462	2347	22.67
3018	1091	705	474	2803	24.55
2851	1078	982	554	2909	25.38
2615	1103	740	510	3136	not available
2641	1110	650	354	2902	21.89
3061	1143	1107	417	2641	22.83
3863	1144	1335	549	2669	25.53
3705	1188	1023	458	2801	25.35

TABLE A-3

1913-14 HARVEST PRICES FOR THE TEN MAIN CROPS

Crop	Price Per Maund (82 2/7 Lb.) ^a		Price Per Ton ^b
	Rupees	Annas	Rupees
	(1)		(2)
Rice	2	- 7	66.35
Wheat	3	- 2	85.07
Barley	2	- 6	64.65
Jowar	2	- 10	71.46
Bajra	2	- 6	64.65
Maize	2	- 6	64.65
Gram	2	- 15	79.97
Rape & Mustard	5	- 8	149.72
Sugar	4	- 2	112.29
Cotton	6	- 11	182.05

^aRai, Agricultural Statistics of the Punjab 1901-02 to 1935-36, p. 108. One maund is equal to 82 2/7 pounds. Sixteen annas are equal to one rupee.

^bComputed by multiplying price of column 1 by $\frac{2240}{82 \frac{2}{7}}$. One ton equals 2240 pounds.

TABLE A-4

ANNUAL ESTIMATED VALUE OF THE TEN MAIN CROPS, 1913-14 TO 1941-42^a
(MILLIONS OF 1913-14 RUPEES)

Year	Rice 66.35 Per Ton ^c (1)	Wheat 85.07 Per Ton ^c (2)	Barley 64.65 Per Ton ^c (3)	Jowar 71.46 Per Ton ^c (4)	Bajra 64.65 Per Ton ^c (5)
1913-14	24.48	238.20	18.62	8.50	19.52
15	23.65 ^b	289.24	24.37 ^b	8.43 ^b	22.37
16	24.41 ^b	187.15	14.74 ^b	7.79 ^b	9.70
17	39.21	221.18	18.50	8.58	33.23
18	31.72	272.22	27.41	4.22	20.17
19	23.49	221.18	21.53	3.07	6.79
20	34.17	289.24	24.44	14.29	28.83
21	27.80	170.14	6.66	7.50	12.87
22	27.47	306.25	19.20	12.22	25.28
23	29.53	272.22	23.60	8.43	27.41
24	29.46	297.75	26.51	9.43	25.54
25	28.93	221.18	16.36	8.22	23.40
26	32.64	246.70	14.09	7.15	17.97
27	28.66	246.70	15.13	7.65	23.47
28	30.85	195.66	14.03	9.00	21.53
29	28.46	263.72	17.26	6.43	15.97
30	32.91	323.27	17.00	6.43	18.23
31	32.45	263.72	10.41	5.36	28.06
32	27.80	238.20	10.41	6.86	29.74
33	29.45	238.20	9.70	8.36	21.08
34	34.97	238.20	9.57	5.50	24.37
35	29.72	255.21	10.86	7.29	22.95
36	30.85	263.72	11.31	6.36	25.21
37	35.90	289.24	13.32	8.79	23.34
38	not available	314.76	13.32	6.36	15.45
39	30.92	272.22	9.76	4.93	14.09
40	29.33	323.27	16.81	4.57	15.77
41	30.72	280.73	14.16	7.00	30.84
42	30.39	331.77	14.68	6.72	28.64

^aComputed from production data given in Table A-1 and price data given in Table A-3. The yearly crop production has been multiplied by its 1913-14 price and then the annual values of all crops have been summed in column 11.

^bNot included in total column 11 for lack of other comparable data.

^cPrice per ton is expressed in rupees.

TABLE A-4 (Continued)

Maize 64.65 Per Ton ^c (6)	Gram 79.97 Per Ton ^c (7)	Rape and Mustard 149.72 Per Ton ^c (8)	Sugar 112.29 Per Ton ^c (9)	Cotton 182.05 Per Ton ^c (10)	Total (11)
28.51	46.22	25.00	36.61	16.93	462.59
18.30 ^b	103.08	28.15	30.09	13.47	486.40
30.00 ^b	36.31	21.86	31.22	5.46	291.70
29.80	68.45	24.55	39.53	9.83	492.86
20.62	120.67	29.35	49.07	8.74	584.19
25.80	37.19	17.37	32.90	13.29	402.61
32.07	80.69	26.65	48.06	20.21	598.65
22.37	28.87	14.07	35.37	16.93	342.58
24.57	91.41	35.03	31.22	8.92	581.57
25.28	120.75	36.08	46.49	11.65	601.44
23.86	89.25	29.35	46.94	18.57	596.66
21.72	91.89	31.29	37.06	25.85	505.90
20.11	60.78	18.72	34.02	25.67	477.85
22.37	95.88	22.01	39.19	16.93	517.99
27.48	68.61	22.46	42.78	16.75	449.15
22.43	58.06	24.25	32.45	17.11	486.14
25.67	61.02	22.61	22.91	22.76	552.81
26.64	72.77	21.11	33.91	21.66	516.09
24.57	86.37	27.55	41.32	17.48	510.30
22.50	71.49	22.61	49.86	18.02	491.28
18.62	110.76	19.61	40.87	30.22	532.69
26.64	63.82	15.12	36.61	30.77	498.99
24.70	76.29	16.92	40.42	40.05	535.83
25.34	76.21	23.06	52.33	47.33	594.86
26.25	51.18	15.72	43.68	37.14	not available
24.83	29.99	16.47	25.71	35.86	464.78
26.18	39.91	22.16	35.71	33.13	546.84
28.96	55.98	26.50	52.78	39.50	567.17
29.93	51.90	23.51	46.26	39.87	603.67

TABLE A-5

ANNUAL ESTIMATED VALUE OF AGRICULTURAL OUTPUT OF ALL CROPS
FROM 1913-14 TO 1941-42

Year	Total Value of the Ten Main Crops (millions of 1913-14 rupees) ^a (1)	Total Acreage Farm Under the Ten Main Crops (millions of acres) ^b (2)	Output Per Acre (1913-14 rupees) ^c (3)	Total Area Sown (mil- lions of acres) ^d (4)	Total Value of the Farm Output (mil- lions of 1913-14 rupees) ^e (5)
1913-14	462.59	21.47	21.55	27.3	588.32
15	486.40	20.94	23.22	31.7	736.07
16	291.70	16.91	17.25	25.9	446.78
17	492.86	25.11	19.63	31.7	622.27
18	584.19	26.37	22.15	32.9	728.74
19	402.61	17.22	23.38	21.9	512.02
20	598.65	23.36	25.63	29.1	745.83
21	342.58	18.96	18.07	24.6	444.52
22	581.57	24.47	23.77	31.0	736.87
23	601.44	25.35	23.73	31.8	754.61
24	596.66	24.29	24.56	30.6	751.54
25	505.90	25.67	19.71	31.7	624.81
26	477.85	23.23	20.57	29.7	610.93
27	517.99	24.29	21.33	30.4	648.43
28	449.15	23.00	19.53	29.5	576.14
29	486.14	25.53	19.04	32.0	609.28
30	552.81	24.30	22.75	31.0	705.25
31	516.09	23.73	21.75	30.3	659.03
32	510.30	25.06	20.36	32.0	651.52
33	491.28	23.15	21.22	30.1	638.72
34	532.69	27.45	19.41	34.5	669.65
35	498.99	22.67	22.01	29.8	655.90
36	535.83	24.55	21.83	31.9	696.38
37	594.86	25.38	23.44	32.6	764.14
38	na	na	na	na	na
39	464.78	21.89	21.23	28.8	611.42
40	546.84	22.83	23.95	29.9	716.11
41	567.17	25.53	22.22	32.8	728.82
42	603.67	25.35	23.81	32.3	769.06

^aTable A-4 column 11.

^bTable A-2 column 11.

^cColumn 1 divided by column 2.

TABLE A-5 (Continued)

^dRai, Agricultural Statistics of the Punjab 1901-02 to 1935-36, p. 100, Agricultural Statistics of the Punjab 1936-37, p. 5, Agricultural Statistics of the Punjab 1938-39, p. 8, Agricultural Statistics of the Punjab 1939-40, p. 6, Agricultural Statistics of the Punjab 1940-41 to 1943-44, p. 19.

^eColumn 4 multiplied by column 3.

^{na}Year 1938: na indicates no statistics available.

TABLE A-6

ANNUAL HARVEST PRICES OF THE TEN MAIN CROPS 1913-14 TO 1941-42^a
(RUPEES PER MAUND OF 82 2/7 POUNDS)

Year	Rice R A	Wheat R A	Barley R A	Jowar R A	Bajra R A
1913-14	2-7	3-2	2-6	2-10	2-6
15	na	3-8	na	na	3-4
16	na	3-5	na	na	3-12
17	2-7	3-10	2-8	2-14	2-13
18	2-10	3-15	2-10	3-0	3-2
19	4-2	5-9	4-0	7-7	6-14
20	4-6	4-15	3-10	4-9	5-6
21	4-9	6-10	5-0	4-13	6-2
22	5-0	5-12	3-13	5-12	6-10
23	3-3	3-12	2-3	3-0	3-5
24	3-0	3-11	2-6	2-8	3-0
25	3-8	5-3	3-7	3-0	3-10
26	3-12	4-15	3-8	4-5	4-12
27	3-10	4-8	3-3	3-10	3-14
28	3-8	4-6	3-3	3-3	3-13
29	3-13	4-6	3-7	4-7	5-3
30	3-4	3-2	2-5	4-2	4-1
31	1-12	1-9	1-5	1-12	1-12
32	1-11	2-1	1-7	1-10	1-10
33	2-2	2-11	2-0	2-1	2-5
34	1-11	2-2	1-7	1-11	1-11
35	1-12	2-4	1-9	1-11	1-12
36	2-1	2-6	1-10	2-0	2-2
37	2-2	3-0	2-0	2-4	2-6
38	na	na	na	na	na
39	1-15	2-6	2-0	2-6	2-6
40	2-5	2-11	2-3	3-0	3-1
41	2-7	3-0	2-1	2-11	2-9
42	3-14	4-15	3-10	3-8	3-10

^aRai, Agricultural Statistics of the Punjab 1901-02 to 1935-36, p. 108, Agricultural Statistics of the Punjab 1938-39, pp. 8-9, Agricultural Statistics of the Punjab 1939-40, pp. 10-11, Agricultural Statistics of the Punjab 1940-41 to 1943-44, p. 27. R and A stand for rupees and annas respectively while na represents not available.

TABLE A-6 (Continued)

Maize	Gram	Rape and Mustard	Sugar	Cotton
R A	R A	R A	R A	R A
2-6	2-15	5-8	4-2	6-11
na	2-12	4-6	4-5	4-4
na	3-0	4-4	5-13	6-9
2-12	2-15	4-2	5-0	8-10
3-0	3-1	4-7	5-1	12-1
4-14	5-9	10-7	7-14	14-14
4-7	4-13	9-9	7-9	13-5
4-11	6-5	9-7	9-1	8-7
6-3	4-14	7-2	9-7	9-14
3-0	2-13	6-0	5-12	10-14
2-8	2-12	6-8	5-8	16-3
3-5	3-11	7-10	6-11	13-5
4-9	4-2	7-15	7-2	10-2
3-10	3-14	7-10	5-15	7-14
3-7	3-13	7-3	5-6	10-13
3-9	4-12	7-0	6-2	10-0
3-6	3-12	5-12	6-5	6-5
1-7	1-14	3-13	4-2	4-8
1-8	1-13	3-8	3-13	5-7
2-7	2-4	3-8	2-12	5-10
1-13	1-12	3-5	3-4	4-4
1-12	1-15	4-6	4-9	5-1
2-12	2-0	4-6	4-0	5-7
2-5	2-6	4-12	3-5	5-14
na	na	na	na	na
2-3	3-4	4-9	5-11	4-9
2-13	3-4	4-11	5-4	6-9
2-9	3-0	4-0	3-5	5-4
3-11	4-14	4-14	4-15	5-0

TABLE A-7

ANNUAL ESTIMATED VALUE OF AGRICULTURAL OUTPUT OF THE TEN MAIN CROPS^a
(MILLIONS OF CURRENT RUPEES)

Year	Rice (1)	Wheat (2)	Barley (3)	Jowar (4)	Bajra (5)
1913-14	24.48	238.20	18.62	8.50	19.52
15	na	323.95	na	na	30.61
16	na	198.37	na	na	15.31
17	39.21	256.57	19.47	9.39	39.35
18	34.16	343.01	30.30	4.82	26.54
19	39.75	393.69	36.26	8.71	19.65
20	61.34	456.99	37.30	24.84	65.26
21	52.04	360.70	14.02	13.76	33.18
22	56.35	563.51	30.82	26.77	70.52
23	38.61	326.66	21.74	9.64	38.23
24	36.26	351.33	26.51	8.98	32.26
25	41.54	367.17	23.68	9.39	35.72
26	50.22	389.79	20.77	11.74	35.95
27	42.63	355.25	20.30	10.56	38.29
28	44.31	273.93	18.83	10.93	34.56
29	44.52	369.21	24.99	10.87	34.88
30	43.88	323.27	16.56	10.11	31.19
31	23.30	131.84	5.75	3.57	20.68
32	19.25	157.22	6.30	4.25	20.35
33	25.69	204.85	8.17	6.57	20.52
34	24.21	161.98	5.79	3.54	17.32
35	21.34	183.75	7.15	4.69	16.91
36	26.11	200.42	7.74	4.85	22.56
37	31.30	277.68	11.21	7.53	23.34
38	na	na	na	na	na
39	24.58	206.88	8.22	4.46	14.09
40	27.82	278.01	15.48	5.23	20.34
41	30.72	269.51	12.30	7.17	33.28
42	48.31	524.20	22.40	8.96	43.72

^aComputed by multiplying output of each crop from Table A-1 by its harvest price from Table A-6. Data in column 11 have been obtained by adding columns 1 through 10.

na Statistics not available.

TABLE A-7 (Continued)

Maize (6)	Gram (7)	Rape and Mustard (8)	Sugar (9)	Cotton (10)	Total (11)
28.51	46.22	25.00	36.61	16.93	462.59
na	96.49	22.39	31.46	8.56	513.46
na	37.08	16.89	43.99	5.36	317.00
34.51	68.45	18.42	47.91	12.68	545.96
26.05	125.81	23.68	60.22	15.76	690.35
52.95	70.41	32.96	62.81	29.56	746.75
59.92	132.19	46.34	88.11	40.23	1012.52
44.15	62.03	24.15	77.71	21.36	703.10
64.01	151.69	45.39	71.42	13.17	1093.65
31.93	115.61	39.36	64.80	18.95	705.53
25.11	83.54	34.68	62.58	44.95	706.20
30.30	115.34	43.38	60.08	51.46	778.06
38.63	85.34	27.01	58.77	38.86	757.08
34.14	126.48	30.51	56.41	19.94	734.51
39.77	89.04	29.35	55.75	27.08	623.55
33.65	93.88	30.87	48.19	25.59	716.65
36.47	77.89	23.64	35.06	21.48	619.55
16.12	46.45	14.63	33.91	14.58	310.83
15.52	53.29	17.53	38.19	14.21	346.11
23.09	54.76	14.39	33.24	15.16	406.44
14.21	65.98	11.81	32.20	19.20	356.24
19.63	42.09	12.03	40.49	23.29	371.37
28.60	51.94	13.46	39.20	32.56	427.44
24.68	61.61	19.91	42.02	41.58	540.86
na	na	na	na	na	na
22.87	33.18	13.66	35.46	24.47	387.87
31.01	44.15	18.88	45.45	32.51	518.88
31.25	57.17	19.27	42.38	31.01	534.06
46.48	86.13	20.84	55.38	29.81	886.23

TABLE A-8

WEIGHTED PRICE INDEX 1913-14 TO 1941-42^a
(1913-14= 100)

Year	Index ^a	Year	Index ^a
1913-14	100	1928-29	148
15	106	30	112
16	109	31	60
17	111	32	68
18	118	33	83
19	185	34	67
20	169	35	74
21	205	36	80
22	188	37	91
23	117	38	not available
24	118	39	83
25	154	40	95
26	158	41	94
27	142	42	147
28	139		

^aComputed by dividing total current-rupee value of the ten main crops (Column 11 of Table A-7) by their 1913-14 rupee value (Column 11 of Table A-4).

TABLE A-9
WEIGHTED PRICE INDEX FOR 1956-57

Crop	1956-57	Output Thousand Tons ^a	Value of the Output in	
	Harvest Price Per Maund Rupees ^a (1)		1956-57 Prices (millions of rupees) ^b (3)	1913-14 Prices (millions of rupees) ^c (4)
Rice	9.76	426	113.18	28.27
Wheat	13.52	2045	752.58	173.97
Barley	9.08	183	45.23	11.83
Jowar	9.89	43	11.58	3.07
Bajar	13.76	240	89.89	15.52
Maize	12.12	703	231.93	45.44
Gram	10.17	1893	524.04	151.38
Rape and Mustard	20.37	114	63.21	17.07
Sugar	14.23	544	210.71	59.96
Cotton A	25.86	167	20.57	5.32
Cotton B	32.28	572	87.96	31.85
Total Value of Agricultural Production of the Main Crops			2150.88	543.68

Price index for 1956-57 = $2150.88/543.68 = 396$

^aEconomic and statistical organization Government of Punjab (India), Statistical Abstract of Punjab 1961, pp. 44-45 and p. 465.

^bColumn 1 multiplied by column 2.

^cCrops of column 2 multiplied by their 1913-14 respective prices (Table A-3, column 1).

TABLE A-10

COST DATA PER ACRE

Items of Expenditure	Cost Per Acre Held (rupees) ^a (1)	Cost Per Acre Cultivated (rupees) ^b (2)	Cost Per Acre Cultivated (rupees) ^c (3)	Per cent of Total Cost Per Cultivated Acre ^d (4)
Hired Labor	13.61	10.79	2.72	15.7
Bullock Labor	45.09	35.76	9.03	52.1
Seed	10.75	8.52	2.15	12.4
Farm Yard Manure	2.77	2.20	.56	3.2
Fertilizers	.45	.36	.09	.5
Interest on Capital Invested	2.30	1.82	.46	2.7
Implements and Machinery	3.15	2.50	.63	3.6
Artisans	3.07	2.43	.61	3.5
Irrigation Charges	5.32	4.22	1.07	6.1
Total	86.51	68.60	17.32	99.8

^aDirectorate of Economics and Statistics, Ministry of Food and Agriculture, Government of India, Studies in Economics of Farm Management in Punjab, Report for the Year 1956-57, (New Delhi, 1960) p. 76.

^bColumn 1 divided by 100/126.1 to convert the cost of production "Per Acre Held" to cost of production "Per Acre Cultivated." Cost of production on the former is 126 per cent higher than the latter (See Ibid., p. 27).

^cCost of column 2 deflated by price ~~index~~ of 396 of Table A-9.

^dComputed directly from column 3.

TABLE A-11

ANNUAL TOTAL COST OF PRODUCTION OF ALL CROPS 1913-14 TO 1941-42
(MILLIONS OF 1913-14 RUPEES)

Year	Total Cost of Production Except Return to Occupants' Labor and Land ^a		Year	Total Cost of Production Except Return to Occupants' Labor and Land ^a	
1913-14	472.84		1928-29	554.24	
15	549.04		30	536.92	
16	448.59		31	524.80	
17	549.04		32	554.24	
18	569.83		33	521.33	
19	379.31		34	597.54	
20	504.01		35	516.14	
21	426.07		36	552.51	
22	536.92		37	564.63	
23	550.78		38	not available	
24	529.99		39	498.82	
25	549.04		40	517.87	
26	514.40		41	568.10	
27	526.53		42	559.44	
28	510.94				

^aComputed by multiplying annual total area sown (Column 4 of Table A-5) and cost per acre (Rupees 17.32 vide Table A-10 Column 3).

Appendix B

A NOTE ON THE RELIABILITY OF STATISTICAL DATA

The data used for this study come primarily from three sources:

- (1) Rai's Agricultural Statistics of the Punjab; (2) Burns's Technological Possibilities of Agricultural Development of India; and
- (3) Government of India, Ministry of Food and Agriculture, Department of Agriculture, Studies in Economics of Farm Management in Punjab, Report for the Year 1956-57. Regarding the reliability of the statistics used, the following comments are made.

Rai's data were prepared under the supervision of the Board of Economic Inquiry, Punjab. His statistics are extracted mainly from "The Season and Crops Reports," "The Punjab Agricultural Statistics," and "The Punjab Livestock Censuses," all three of which are published by the Director of Land Records, Punjab; also from "The Land Revenue Administration Reports" issued by the Financial Commissioner, Punjab, and "The Administrative Reports" of "The Punjab Irrigation Department."¹

Burns, who compiled only acreage and output data, depended for his information mostly on the "Estimates of Area and Yield of Principal Crops in India" published by the Government of India, Department of

¹Rai, Agricultural Statistics of the Punjab, 1901-02 to 1935-36, p. 1.

Commercial Intelligence and Statistics.²

Rai's data relating to area and output have been compared with Dr. Burns' data by the author of this study, and they are in complete agreement except for slight differences relating to only one crop (Bajra) for a period of seven years (1928-29 to 1934-35). This difference is not likely to change the analysis since its contribution to the ten main crop output has been small and has ranged between 1.69 per cent and 6.74 per cent throughout the period of 1913-14 to 1941-42. During the years of deviation, Bajra contributed between 3.38 per cent and 5.83 per cent. Therefore the data for the whole Punjab are considered relatively reliable. This reliability varies, however.

Prices: The prices of crops represent harvest time price. These prices were used as they were the ones which the settlement officers were supposed to use when they calculated the value of the agricultural production for tax purposes. The harvest-price figures represent the average of the district³ and are on the whole reliable since they were easily available.

Area: The area figures are very reliable:

. . . there exists in the village of most provinces an agency capable of reporting the acreage of crops with great accuracy, wherever the fields have been mapped and surveyed.⁴

Yields: The yield figures are relatively less reliable than other

²Nasir Ahmed Khan, Problems of Growth of an Underdeveloped Economy-India (New York 1960), p. 395.

³Rai, Agricultural Statistics of the Punjab, 1902-03 to 1935-36, p. 26.

⁴Government of India, Department of Commercial Intelligence and Statistics, Estimates of Area and Yield of Principal Crops in India (Annual) 1937-38, p. 45; quoted by Raj Krishna, p. 88.

data. First, the official normal yield was determined from time to time, usually every five years for each district of the Punjab. The bases for this yield were (a) the yield fixed in the previous returns or those used for assessment purposes; (b) the results of crop experiment cuttings; (c) the opinion of the local officers of the revenue and agricultural departments.

To this normal yield, the seasonal factor was applied. The seasonal factor was based on the village accountants' reports and the personal judgment of the superior district officers. According to the seasonal factor, a normal crop yield was described as "16 annas crops" and sub-normal and bumper crops were described as equivalent to less or more than 16 annas respectively. (An anna is equal to 1/16th of a rupee). The seasonal factor was always expressed in whole annas and did not take into consideration any smaller fractional variation.⁵

Thus the yield estimates admit the judgment factor and cannot, therefore, be considered to be exact, a limitation which must always be considered. It must at the same time be reckoned that this opinion of ascertaining yield estimates was that of the agricultural experts and is not expected to be wide of the mark. For this reason, the estimates are considered relatively reliable and have been considered so by the other authors.⁶

Costs: The cost data are the most recent ones. Studies in the Economics of Farm Management in Punjab was carried out under the supervision of the Deputy Director of Agriculture, Punjab, in collabo-

⁵Krishna, pp. 88-89

⁶Khan, p. 395, and Krishna, p. 87.

ration with the Punjab Board of Economic Inquiry and was based on a sample of 32 villages. This study was carried out by 61 experts at the initiation of the Government of India and is, therefore, considered to be fairly reliable. Nevertheless, the inherent difficulties involved in estimating the costs of agricultural production in underdeveloped countries must always be kept in mind, especially when comparing their reliability with the similar data available in developed countries.

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