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THE LAND DEVELOPMENT TAX IN BANGLADESH:
INSIGHTS FROM THE 1978 LAND
OCCUPANCY SURVEY

BARBARA D. MILLER AND JAMES A. WOZNY

METROPOLITAN STUDIES PROGRAM
THE MAXWELL SCHOOL OF CITIZENSHIP AND PUBLIC AFFAIRS
SYRACUSE UNIVERSITY
SYRACUSE, NEW YORK 13210

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FOREWORD

This paper is the fourth in a series of Interim Reports issued through the Bangladesh Zilla Roads/Local Finance Project. It focuses upon the distributional effects and revenue potential of the Land Development Tax, a land-based tax levied against total land ownership. Although not currently a local government revenue source, the LDT constitutes the principle land-based tax in the country and is the single most important revenue instrument designed to mobilize resources directly from the agricultural sector. Furthermore, if revenue mobilization is to be strengthened in the rural areas of the country, it is likely that a tax such as the Land Development Tax will have to be imposed.

The paper utilizes a unique data set--the 1978 Land Occupancy Survey of land ownership in Bangladesh--which previously has not been employed to analyze land-based taxes in the country. By combining land ownership information with both the 1976 and 1982 tax rate structures, Miller and Wozny are able to draw conclusions regarding the distributional implications of the tax under both rate structures as well as to estimate the tax yield potential inherent in this levy. Given the unequal distribution of land ownership in Bangladesh and the progressive rates of the tax, a small proportion of all landowners (10 percent) should have been paying most (80 percent) of the tax under the 1976 rate structure and even more (86 percent) under the new rates. Interestingly, the alteration of rates with minimal taxes imposed on all land-holders also increases the proportion of the tax liability of owners of the smallest plots.

The Local Finance Project is one component of the Bangladesh Zilla Roads Maintenance and Improvement Project (Project Number 388-0056) and is intended to increase the capacity of local governments in Bangladesh to mobilize and effectively administer financial resources. While a Final Report will be issued at the close of the project, these Interim Reports are being released as the analysis occurs. Findings and conclusions contained herein are provisional and may be altered in the Final Report. The work is supported by the United States Agency for International Development, Washington, D.C., under a Cooperative Agreement with Syracuse University (Project Number 936-5303). The views and interpretations in this publication are our own and should not be attributed to the United States Agency for International Development.

Barbara Miller is a Senior Research Associate in the Metropolitan Studies Program; James Wozny is a doctoral student in Economics at the Maxwell School and a Graduate Research Assistant in the Metropolitan Studies Program. The authors are grateful for the assistance provided to them by numerous individuals. Especially helpful in Bangladesh were

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Larry Schroeder
Project Director
Zilla Roads/Local Finance Project

TABLE OF CONTENTS

	<u>Page No.</u>
Foreword	iv
List of Tables	vii
Introduction	1
Looking at Tax Potentials	1
The Land-Ownership Data	2
The Land Development Tax	7
Revenue Effects of the Rate Change	10
Inter-Village Variation	12
District-Wise Variation	18
Distributional Effects	25
Considerations for Future Research and Policy	29
Research Priorities	31
Policy Priorities	34
Conclusion	35
Appendix A: MAP	36
Appendix B: LOS SAMPLE VILLAGES, POPULATION, ACREAGE, AND TAX POTENTIALS	37
Appendix C: RATES OF LAND DEVELOPMENT TAX FOR AGRICULTURAL LAND	42

LIST OF TABLES AND FIGURES

<u>No.</u>	<u>Title</u>	<u>Page No.</u>
1	SUMMARY RESULTS, LOS SAMPLE	11
2	DISTRICT-LEVEL DATA	19
3	SIMPLE CORRELATION COEFFICIENTS BETWEEN LANDHOLDINGS CHARACTERISTICS AND TAX POTENTIAL AT THE DISTRICT LEVEL	21
4	DISTRIBUTION OF POPULATION, LANDHOLDINGS, AND POTENTIAL TAX REVENUE BY DECILE OF HOUSEHOLDS RANKED ACCORDING TO SIZE OF HOLDINGS	26
5	COMPARISON OF THE DISTRIBUTION OF LDT LIABILITY FOR LOS VILLAGES UNDER THE 1976 AND 1982 RATE STRUCTURES	27
 <u>Figures</u>		
1	LOS VILLAGES WITH (a) HIGH REVENUE POTENTIAL PER ACRE AND (b) LOW REVENUE POTENTIAL PER ACRE, 1976 AND 1982 RATES	15
2	LOS VILLAGES WITH (a) HIGH REVENUE POTENTIAL PER CAPITA AND (b) LOW REVENUE POTENTIAL PER CAPITA, 1976 AND 1982 RATES	16
3	LOS VILLAGES WITH (a) HIGHEST PERCENTAGE INCREASE AND (b) LOWEST PERCENTAGE INCREASE IN REVENUE POTENTIAL DUE TO THE RATE STRUCTURE CHANGE	17
4	DISTRICT-WISE REVENUE POTENTIALS (a) TOTAL TAXABLE ACREAGE PER CAPITA (b) REVENUE POTENTIAL PER ACRE, BASED ON LOS DATA	20
5	DISTRICT-LEVEL RELATIONSHIPS BETWEEN LANDHOLDING CHARACTERISTICS AND LDT POTENTIAL.	24
6	COMPARISON OF LANDHOLDING SHARES AND TAX POTENTIAL SHARES UNDER 1976 AND 1982 RATE STRUCTURES	30

Introduction

The direct taxation of agricultural land is one important mechanism through which governments generate revenue. In Bangladesh, agricultural land is taxed in two ways: by local governments through the holdings tax, and by the central government through the Land Development Tax (LDT). This paper analyzes survey data on land-ownership patterns in 128 villages in reference to the potential revenue of the LDT under the 1976 and 1982 rate structures. The importance of landholding patterns in the context of a graduated rate structure is highlighted.

Looking at Tax Potentials

Before fresh taxation is proposed or considered, it is desirable that the incidence, yield and possibilities of existing rates of taxation should be measured.¹

More than half a century ago a British administrator in (then) Bengal performed an economic survey of the district of Faridpur, a district which lies in the center of present-day Bangladesh and is one of its very poorest. The author of the survey, J.C. Jack mentions the dispute over whether Bengal in fact was one of the most lightly taxed countries (through direct taxation) in the world, and if so, why this is the case. The author feels that Bengal was scarcely taxed at all, and that the reasons are largely due to government policy against heavier taxes. He felt that better statistics would convince the government

¹J.C. Jack, The Economic Life of a Bengal District (Delhi: Agam Prakashan, 1975, reprint of 1917 edition), p. 133.

that heavier taxes could be borne, that the benefits of services such as roads, water, and health would convince people to pay their taxes more willingly, and that improved assessment and collection procedures could easily double local revenues without a rate increase.

The problem of improved local taxation in Bangladesh is now as cloudy as it was in Jack's time, and statistics on local taxation may be even poorer than they were in the early 1900s. Systematic analyses of fiscal data on various land and property-based taxes in Bangladesh are being reported on elsewhere.¹ This paper relies on a different set of data that shed light on the potentials of one of Bangladesh's land-based taxes, the Land Development Tax (LDT). Although the LDT is currently a central government tax, we believe it merits analysis as a potential local revenue source.

The paper proceeds from a discussion of the data employed to a review of the LDT, after which the results of the analysis of potential revenue from the LDT are presented, including revenue effects and distributional effects of the rate change from 1976 to 1982. In conclusion, we offer suggestions for future research and policy.

The Land-Ownership Data

Obtaining dependable data on land ownership patterns in any developing country is very difficult, whether the data are collected by

¹James Alm, "The Land Development Tax in Bangladesh," (Syracuse, New York: Local Revenue Administration Project, Interim Report, forthcoming); James Alm, "The Immovable Property Transfer Tax in Bangladesh" (Syracuse, New York: Local Revenue Administration Project, Interim Report No. 3, April 1983).

an anthropological fieldworker who has spent months living among the people being surveyed, or by a well-trained professional surveyor who collects verbal reports on ownership from a household member. Ideally, one should employ multiple data bases which can be used to cross-check one another and to fill in gaps. The best possible data situation would be a combination of government records as to ownership (which are rarely up-to-date and completely accurate), a careful survey of stated ownership, and also information gathered through in-depth fieldwork in several locales in order to check and complement other information. Even in-depth field research may fail to expose the true extent of ownership, particularly for the largest landowners, due to deliberate attempts to conceal the truth, or more innocent reasons such as extremely scattered holdings.

In two successive years, economists Jannuzi and Peach were involved in conducting a Land Occupancy Survey (LOS) throughout Bangladesh on a sample basis.¹ The 1977 and 1978 surveys were conducted in the same villages, though several villages surveyed in 1977 were dropped in the 1978 survey due to a variety of factors. The 1977 survey was conducted among only a percentage of the households in the sample villages, while

¹F. Tomasson Jannuzi and James T. Peach, "Report on the Hierarchy of Interests in Land in Bangladesh" (USAID: Dhaka, September 1977); F. Tomasson Jannuzi and James T. Peach, The Agrarian Structure of Bangladesh: An Impediment to Development (Boulder, Colorado: Westview Press, 1980). Data for the 1977 and the 1978 surveys were collected in Bangladesh under the auspices of the United States Agency for International Development in collaboration with the Bangladesh Bureau of Statistics.

the 1978 survey was a total census of all households in the villages included in the sample. It is the 1978 data which we rely upon here.

The 1978 LOS was conducted in 128 villages ("primary sampling units") in 18 districts, chosen through a random selection of thanas in every district, then a random selection of unions, and finally a random selection of villages within the unions (Appendices A and B).¹ Villages with strong urban characteristics were deleted from the sample. The authors provide little insight into the errors created by such a sampling method, nor do they discuss the representativeness of villages surveyed. In all fairness to Jannuzi and Peach, it must be mentioned that the sampling method was of less concern to them since their goal was to generate national estimates.

The field staff was provided by the Bangladesh Bureau of Statistics and trained intensively by Jannuzi and Peach. The village surveys were conducted simultaneously by one or more staff members in each village usually within one week, but two weeks were spent in larger villages.²

In spite of some problems that have been mentioned elsewhere regarding the 1978 LOS,³ we feel that the data provide rich information

¹The Chittagong Hill Tracts were not included in the 1978 LOS due to political disturbances there, and present-day Jamalpur district was included in Mymensingh district at the time of the survey. Bangladesh is currently divided into 21 districts, about 480 thanas and nearly 5,000 unions (a union comprises between five and ten villages).

²Jannuzi and Peach, 1980, pp. 89-90. Villages in the sample range in size from the smallest of 327 in Sreemangal, Sylhet district, to the largest of 4927 in Bancharampur, Comilla district.

³Mead Cain, "Landlessness in India and Bangladesh: A Critical Review of Data Sources" (New York: The Population Council, Center for Policy Studies, Working Paper No. 71, May 1981).

on local patterns of land ownership which can help assess revenue potential from the LDT. We have used the data in the following way. We have not assumed "typicality" of the individual villages but have nevertheless examined individual village data in order to get an idea of the range of variation in patterns of landownership within the entire data set. Table 1 shows the villages surveyed, the population in the village, and the total acreage of reported owned land in the village. There is a rough correspondence between size of the district (population-wise) and the number of villages surveyed since thanas and unions are generally formed on the basis of population. Thus, the district with the smallest population, Tangail, has only three surveyed villages, while large districts such as Mymensingh and Dhaka have fourteen and ten surveyed villages, respectively.

Jannuzi and Peach discuss three major biases in the survey data: significant underestimation of land ownership among the top 10 percent of the population (resulting from simple reporting errors by informants, conscious misreporting, and the fact that absentee landlords were not included in the survey since questionnaires were administered only to resident household heads); underestimation of the proportion of the landless (it is common for respondents to claim ownership of some land even though such is not the case); and understatement of the extent of tenancy and amount of land tilled by those households.¹ Since we are concerned only with land owned, the last bias relating to tenancy does not affect us; but the first two biases must be considered.

¹ Jannuzi and Peach, 1980, pp. 91-92.

The biases created by ownership mis-reporting at the extremes (large holdings and small holdings) will have the following effects on our analysis: we will consistently undercount the amount of acreage held by large landowners and will thus underestimate the revenue that should be earned at the upper end, and we will overestimate acreage in small holdings and will thus overestimate the revenue to be earned from the smallest holdings.¹ The undercount of large holdings will have a greater influence on estimated revenue than the overcount of small holdings, since the tax burden at the low end is considerably less than that for large holdings.

There are, however, some clear advantages to the LOS data. First, land is distinguished as either homestead land (i.e., generally not used for cultivation, though perhaps for some gardening), and "other" which includes both cultivable and non-cultivable land. The data show, as Cain comments, that there is "remarkably little noncultivable [sic] land aside from homestead land...under private ownership in rural Bangladesh, particularly at the lower end of the distribution."² Therefore, estimations of revenue potential could be made separately for homestead and non-homestead land, which future tax rates may take into account. Second, the breakdown in reported land is in decimals which are fine categories (one acre equals one hundred decimals), allowing detailed analysis.

¹Throughout the paper, for brevity's sake, we refer to village acreage, or per capita acreage rather than the more accurate terms, reported village acreage, and reported per capita acreage.

²Cain, "Landlessness in India and Bangladesh," p. 11.

Advantages and disadvantages of the LOS data aside, it must be remembered that we can learn from them only about LDT potential, something which is often far removed from the reality of collection statistics.¹ Even though the LOS data were amassed with a different purpose in mind, they do provide a rich source of insight concerning revenue potentials.

The Land Development Tax

The direct taxation of land in Bangladesh has an ancient heritage.² By the third century B.C. land revenue was the accepted source of income for the government of northern India (which then included Bangladesh).³ A text from the era of the Mauryan Empire (321-185 B.C.) called the Arthashastra, which dealt with government and economics, refers at length to methods and problems of land tax assessment and collection. At that time land revenue was fixed at about one-sixth of the gross product. A centralized government administration was in charge of surveying the fields and maintaining soil classification records. During the Muslim rules of Sher Shah and Akbar (in the sixteenth and seventeenth centuries), further refinements in the assessments were made. Akbar classed land into four grades and

¹ By tax potential, we mean the amount of the tax that should be collected from each taxpayer given the legal rate structure and the reported size of holdings of the taxpayer.

² For a brief review, see, Government of Bangladesh, Final Report of the Taxation Enquiry Commission (Dhaka, 1979), pp. 260-262.

³ Romila Thapar, A History of India, Vol. I (Baltimore, MD: Penguin Books, 1969), pp. 75-77.

stipulated that settlements should be reconsidered every ten years. Under the British, land revenue was still assessed on the basis of the productivity of land, supposedly 9/10th of what the zamindars realized from their tenants in rent.

Historical documentation for the change from a tax on productivity of the land to a flat rate per plot size is difficult to find, though it is clear that between the time of the British presence in South Asia and the independence of Bangladesh from Pakistan, the flat rate per acreage had been introduced. This form of taxation is easier to administer since it does not require periodic estimations of the productivity of each acre of land, but it is less equitable because the same rate of tax is paid on all land regardless of variation in yield from different types of land. Another major problem with this type of tax is that tax revenues do not rise automatically with inflation. If the government wishes to maintain a constant level of expenditures in real terms, it frequently must increase the rates per acre.¹

The most important changes in the land revenue since Independence include the 1972 exemption by the Awami League government of owners having up to 25 bighas (8.33 acres) from paying land revenue, while the revenue demand for those holding more than 25 bighas was Tk. 6.45 per

¹Our analysis is made much simpler and yet more relevant by the flat rate character of the Land Development Tax. It is made simpler because we can calculate individual tax liabilities using the data on the size distribution of landholdings provided by the Land Occupancy Survey; knowledge of actual agricultural production is not required. Our analysis is made more relevant because the government will feel the pressure for frequent revisions of the rate structure and the information we are able to supply will be of use in designing a structure to meet revenue and distributional objectives.

acre. In 1976 the Land Development Tax Ordinance created the basic form of the present Land Development Tax by merging the land revenue with some other taxes such as the local rate. For agricultural land, the LDT rate was set at Tk. 2.7 per acre for a family holding up to 8.25 acres, and Tk. 15 per acre for a family holding more than 8.25 acres. In 1982 the LDT rates were further amended through the imposition of a more complex graduated structure (see Appendix C).

Thus, the LDT has moved in the direction of greater progressivity in its rate structure. A progressive rate structure for a land tax is generally recognized to have merit in terms of vertical equity. If the graduation in rates were related to the potential output of agricultural land, the tax would discourage speculative holdings of idle land by absentee landlords and would complement land reform policy by promoting the sale of such land to small-scale producers who would use it more intensively. All owners would be encouraged to put land to its most productive uses.¹ The LDT rates are based solely on the size of holdings and thus, at first glance, offer no incentive for efficient production; we examine this problem below.

The extreme jump in the rate of the 1976 tax at the 8.25 acre break-off point should provide a considerable incentive to larger landowners to either sell some of their holdings, register them in someone else's name, or to under-report their owned acreage to the LOS

¹See the discussion of these issues in Stephen R. Lewis, Jr., "Agricultural Taxation in a Developing Economy," in Richard M. Bird and Oliver Oldman, Readings on Taxation in Developing Countries, 3rd edition (Baltimore, Maryland: Johns Hopkins University Press, 1974), pp. 392-393.

surveyor (as is often the case with reporting of owned holdings to land registration offices throughout the country). A close examination of the number of households reporting each plot size, however, yields no evidence of a kink around 8.25 acres in the roughly asymptotic decline in the number of households with increasing holding size. The more sharply graduated 1982 rate structure should significantly increase the incentive to alter either the reported or the actual size of landholdings; future landowning survey data would help shed light on this possibility as would complementary analysis of the LDT tax records.

Revenue Effects of the Rate Change

The tax potential for each village was computed simply by applying the appropriate rate to each household plot in the village and summing the amounts of tax owed by each household.¹ Table 1 shows the tax liability for all of the households in the survey. Under the former rate structure the government should have been able to collect 395,000 taka from this sample of villages which encompasses 60,200 acres of land. With the revision of LDT rates in 1982 the government should be able to collect 1,140,000 taka from this same tax base. The 1982 rate enhancement has thus increased the revenue potential of this sample by 188.6 percent.

¹Plots included in this survey are only those owned by inhabitants of the village where the survey was conducted. There may be plots within the village boundary owned by persons in the adjacent village, or by absentee landlords. Likewise, persons living in the village where the survey was conducted may be less likely to report holdings which lie in other village areas.

TABLE 1

SUMMARY RESULTS, LOS SAMPLE

A. Revenue Impact From LDT Rate Change

Total Sample Population:	201,892
Total Sample Acreage:	60,200 acres
Potential Revenue Under 1976 Rate Structure:	395,000 taka
Potential Revenue Under 1982 Rate Structure:	1,140,000 taka
Percent Increase in Potential Revenue Due to Revision of Rates	188.6%

B. Means and Coefficients of Variation Across Villages for Population,
Acres Per Capita and Revenue Potentials^a

	<u>Population</u>	<u>Per Capita</u>	<u>Potential Revenue Per Capita</u>		<u>Potential Revenue Per Acre</u>		<u>Percentage Increase Per Acre^b</u>
			<u>1976</u>	<u>1982</u>	<u>1976</u>	<u>1982</u>	
Unweighted Mean	1577	.31	2.03	5.68	5.73	15.60	163.3
Weighted ^c Mean		.30	1.96	5.65	6.56	18.94	188.6
Coefficient of Variation ^d	69.41	47.62	88.28	101.22	38.10	49.96	31.28

^aIndividual village data are provided in Appendix B.

^bAverages of and variation in individual village increases.

^cWeighted by population for the per capita variables and by acreage for the per acre variables.

^dRatio of the standard deviation of the variable to the mean of the variable.

SOURCE: Computed by the authors using data from the 1978 Land Occupancy Survey.

The weighted means of tax payments given in Table 1 show that on average an LOS household should have paid 6.56 taka per acre under the old rate structure. Under the 1982 rates the average tax liability per acre will be 18.94 taka. The unweighted means in Table 1 show the per acre tax liability in the average village. The coefficients of variation reveal that, even after controlling for village size, there is considerable variation in tax potentials across villages.

Our empirical base is limited to comprehensive data on both the size of landholdings within each village and village populations. Thus, the analysis abstracts from any differences among villages in the effectiveness of tax administration. Any variation in tax potential revealed by this analysis, therefore, is entirely attributable to the variation in the size distribution of landholdings across villages. The following section addresses the nature of this relationship.

Inter-Village Variation

As a consequence of the graduated rate structure of the LDT, villages of equal land area will generate different LDT revenue totals if they differ in the size distribution of landholdings. For two equal-sized villages the one which has a higher share of its acreage in large plots will have a higher revenue potential because the amount of tax paid per acre increases with plot size. The more steeply graduated the rate structure of a land tax, the greater will be the per acre revenue variation caused by variations in land distribution. The coefficients of variation in Table 1 show that inter-village variation

in tax potential has increased with the introduction of the more sharply graduated 1982 LDT rates.

We define high-tax (low-tax) villages as those which fall into the highest (lowest) quartile of the sample villages ranked according to potential tax revenue per acre (or per capita, depending on the context). Under the 1982 LDT rates, no high-tax-per-acre village has less than 16 percent of its total acreage in plots of over 10 acres, whereas none of the low-tax villages has more than 12 percent of its acreage in holdings of this size. In the same vein, none of the high-tax villages has more than 64 percent of its total acreage in holdings of less than 5 acres, while no low-tax village has less than 67 percent of its acreage in such plots. In the sample as a whole, 25 percent of total acreage is held in plots over ten acres in size and 52 percent of the land consists of plots of less than 5 acres. The village in Niamatpur, Rajshahi district, which has the highest revenue potential per acre in the sample, 42.30 taka, has 75 percent of its total acreage in plots larger than 10 acres and only 12 percent in plots smaller than 5 acres. In contrast, the Raipura village, in Dhaka district, which has a per acre revenue potential of only 4.34 taka, has 93 percent of its acreage in holdings below 5 acres. Unfortunately, except for district-level estimates of land productivity (measured in terms of value-added per acre) examined in the next section, we have no detailed information concerning the relationship between size and productivity of holdings.

The geographic dispersion of high- and low-tax-per-acre villages is presented in Figures 1a and 1b. This pattern corresponds, logically enough, with the regional ecology and demography of Bangladesh. High-tax villages are found preponderantly in the moribund delta districts on the periphery extending from the northwestern corner eastward to Sylhet and southward to Khulna. This region is generally characterized by relatively lower population density and less rich soil than the active delta districts. In the active delta region (comprising Dhaka, Faridpur, Noakhali, Barisal, and Patuakhali districts) population densities are the highest and the soil is the most fertile due to constant refurbishment from the flooding rivers. This group of active delta districts, along with Chittagong district, contains preponderantly low-tax villages.

If we look instead at the dispersion of high- and low-tax-per-capita villages (Figures 2a, 2b) the regional contrast becomes even more distinct because of the higher concentration of population in the delta relative to the rest of the country. Villages in this region on average have lower total acreages per capita (see Appendix B) in addition to having lower tax potential per acre. There is much greater variation across villages in revenue potential per capita than exists on a per acre basis.

Villages with relatively high revenue potentials under the 1976 LDT rates in general have experienced relatively large percentage increases in revenue potential as a result of the 1982 rate revision (Figure 3a). Likewise, villages with relatively low revenue potential under the 1976 LDT rates generally have experienced relatively small percentage

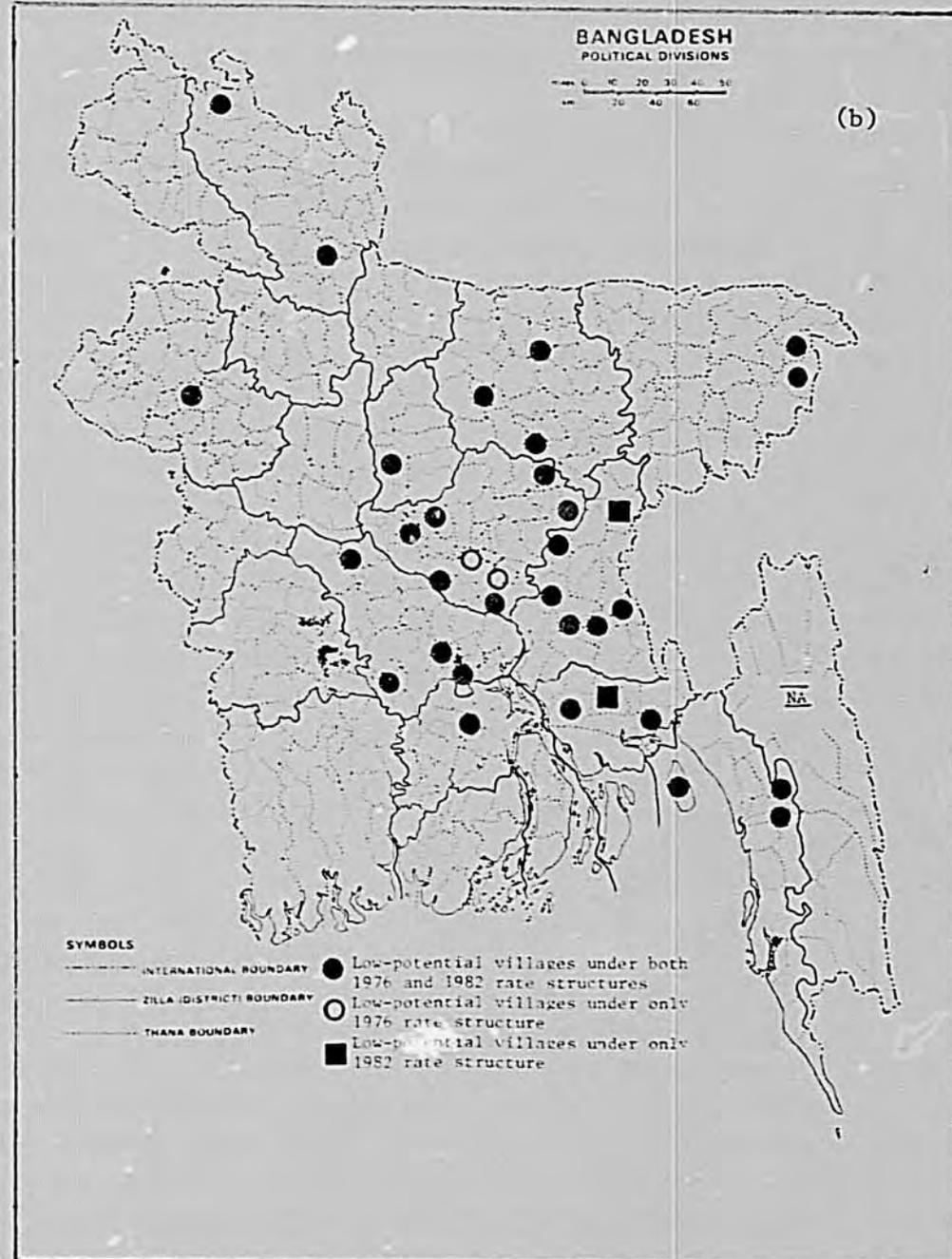
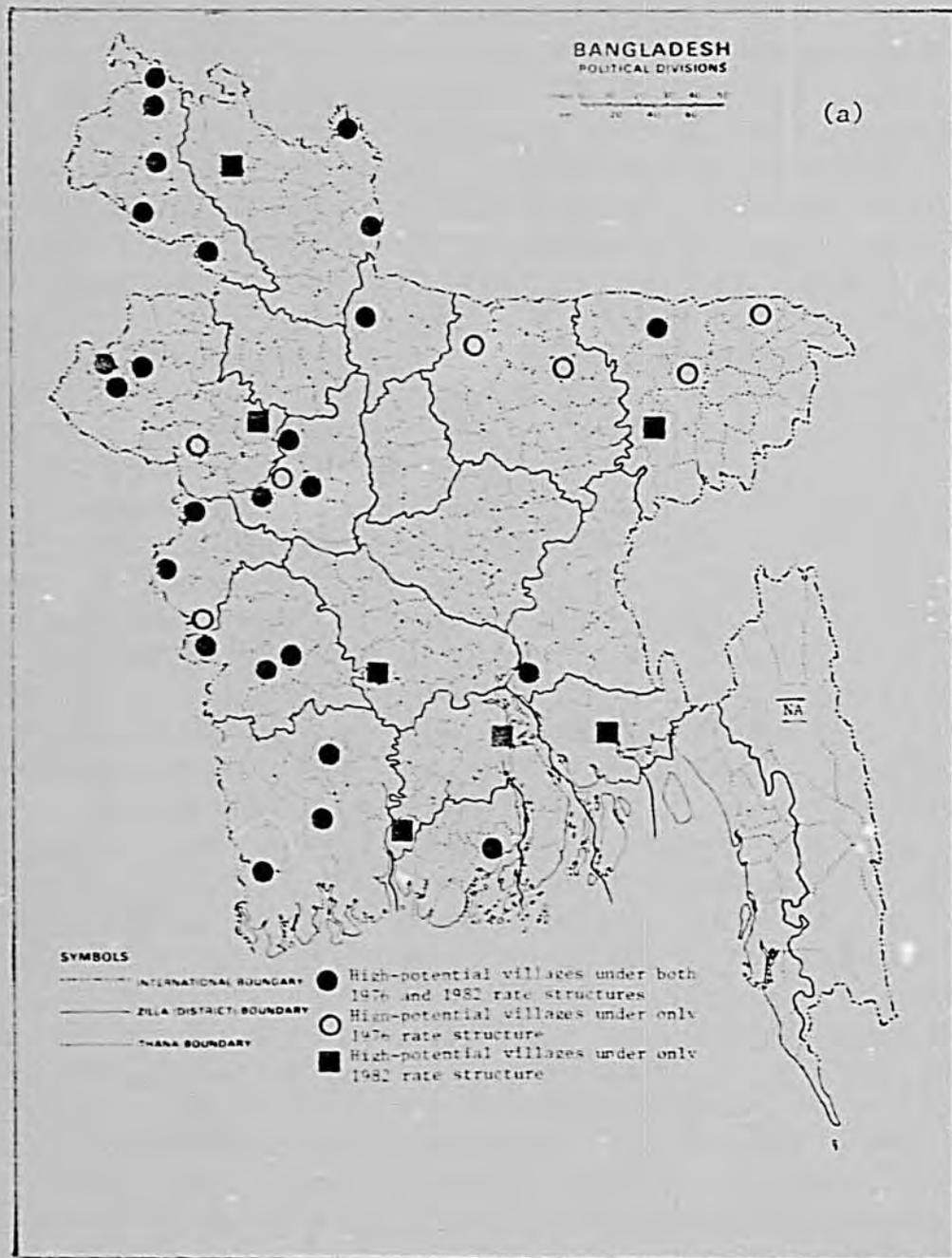


Figure . LOS Villages with (a) High Revenue Potential Per Acre and (b) Low Revenue Potential Per Acre, 1976 and 1982 Rates.

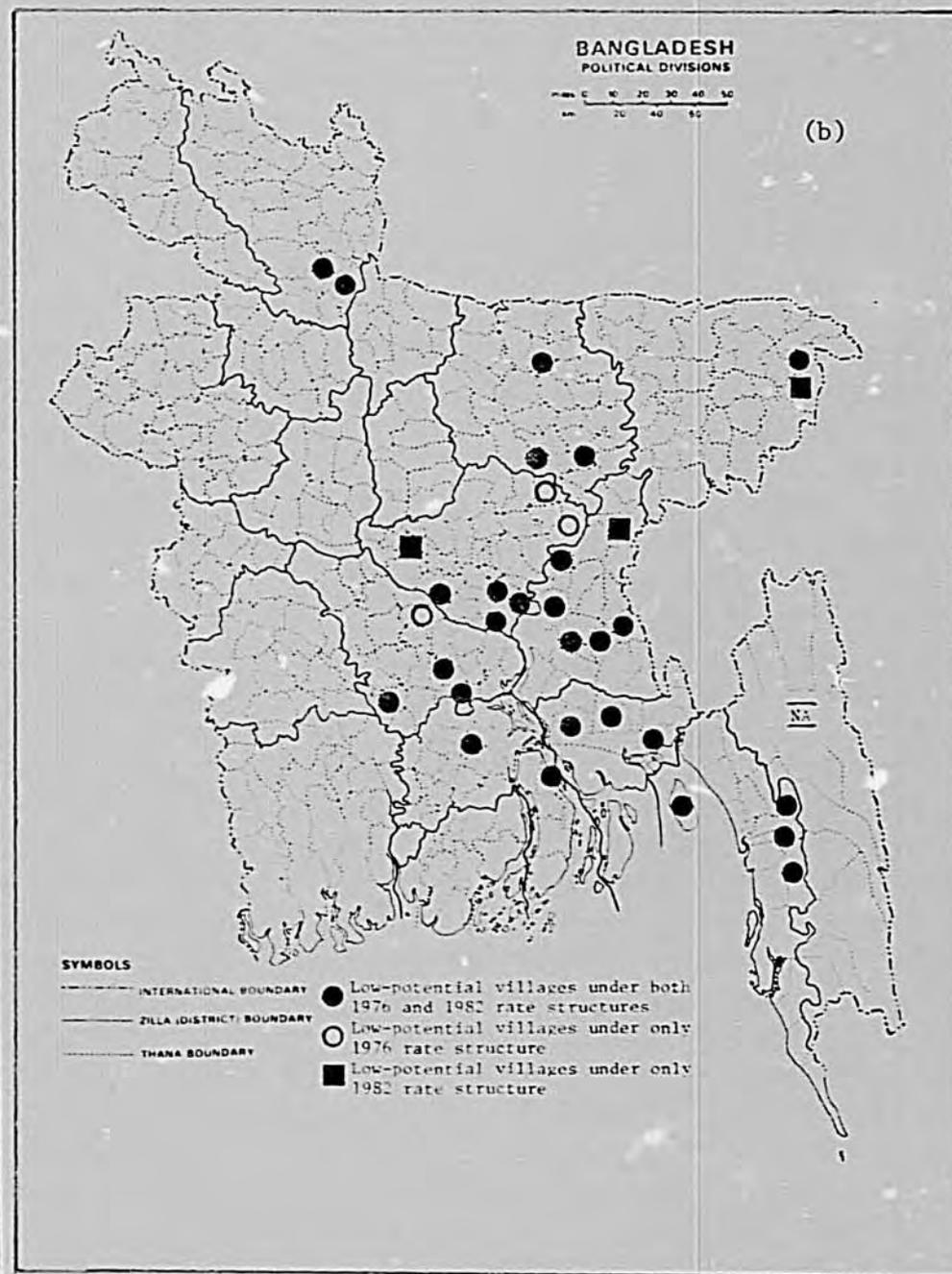
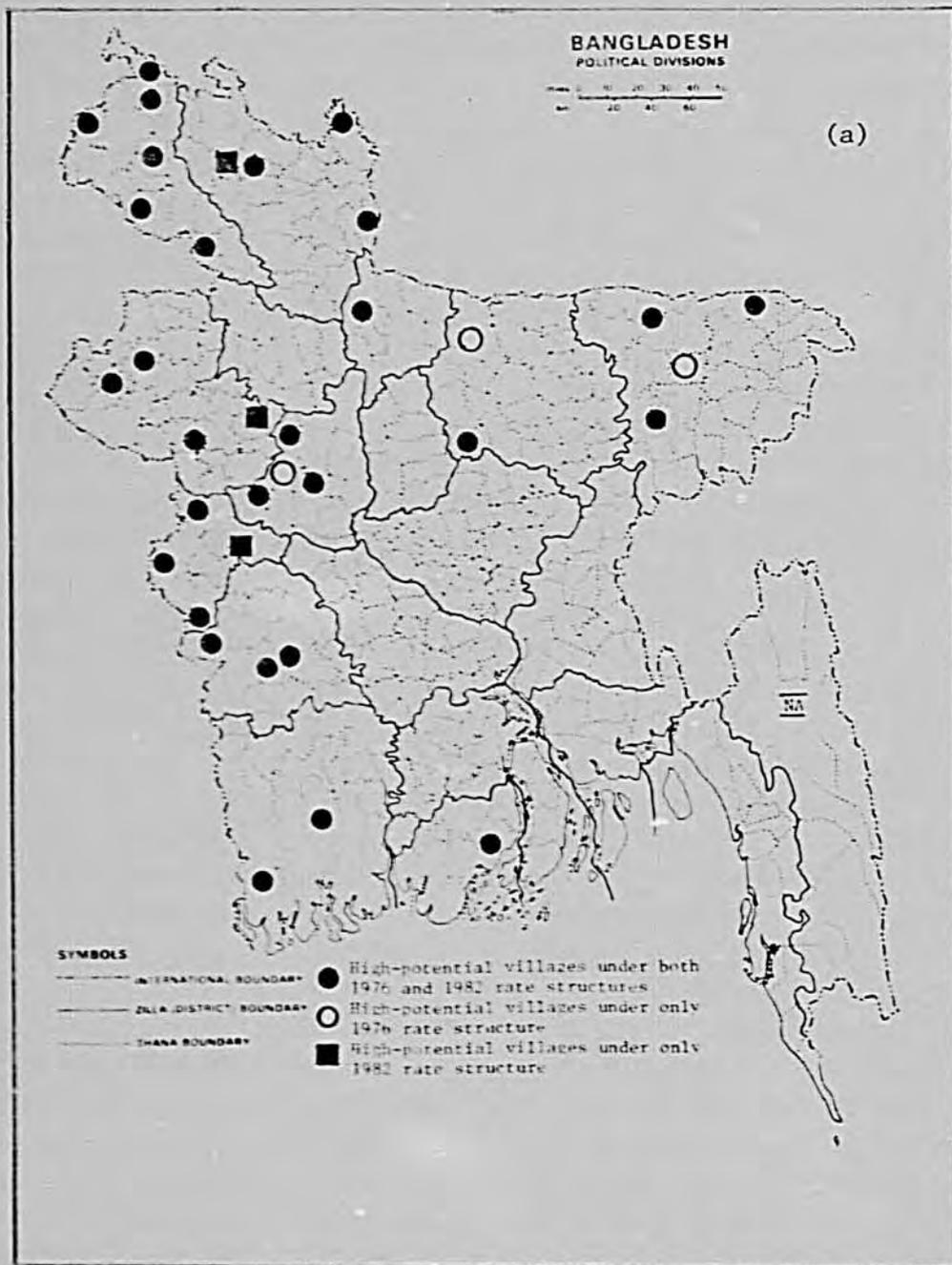


Figure . LOS Villages with (a) High Revenue Potential Per Capita and (b) Low Revenue Potential Per Capita, 1976 and 1982 Rates.

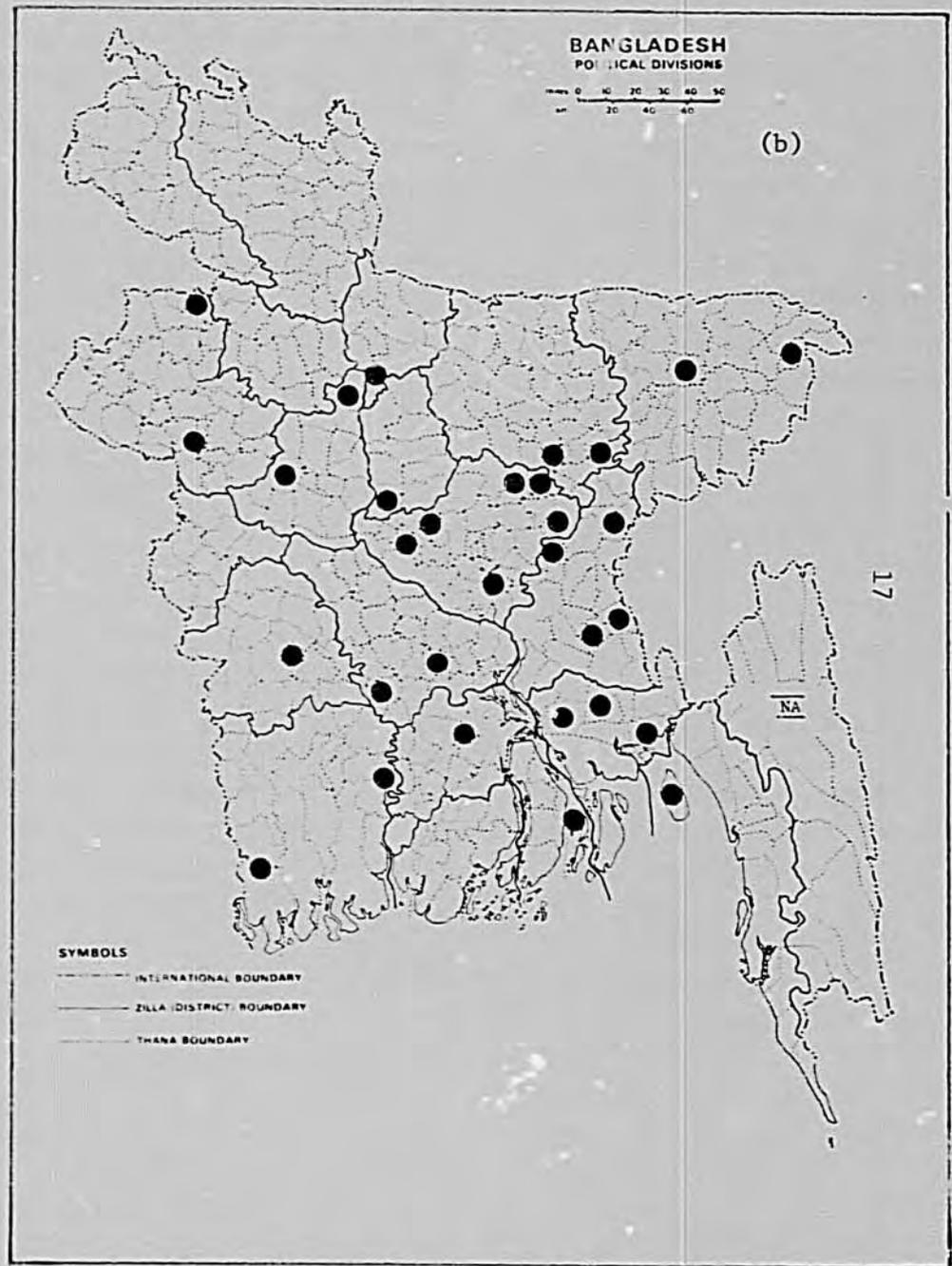
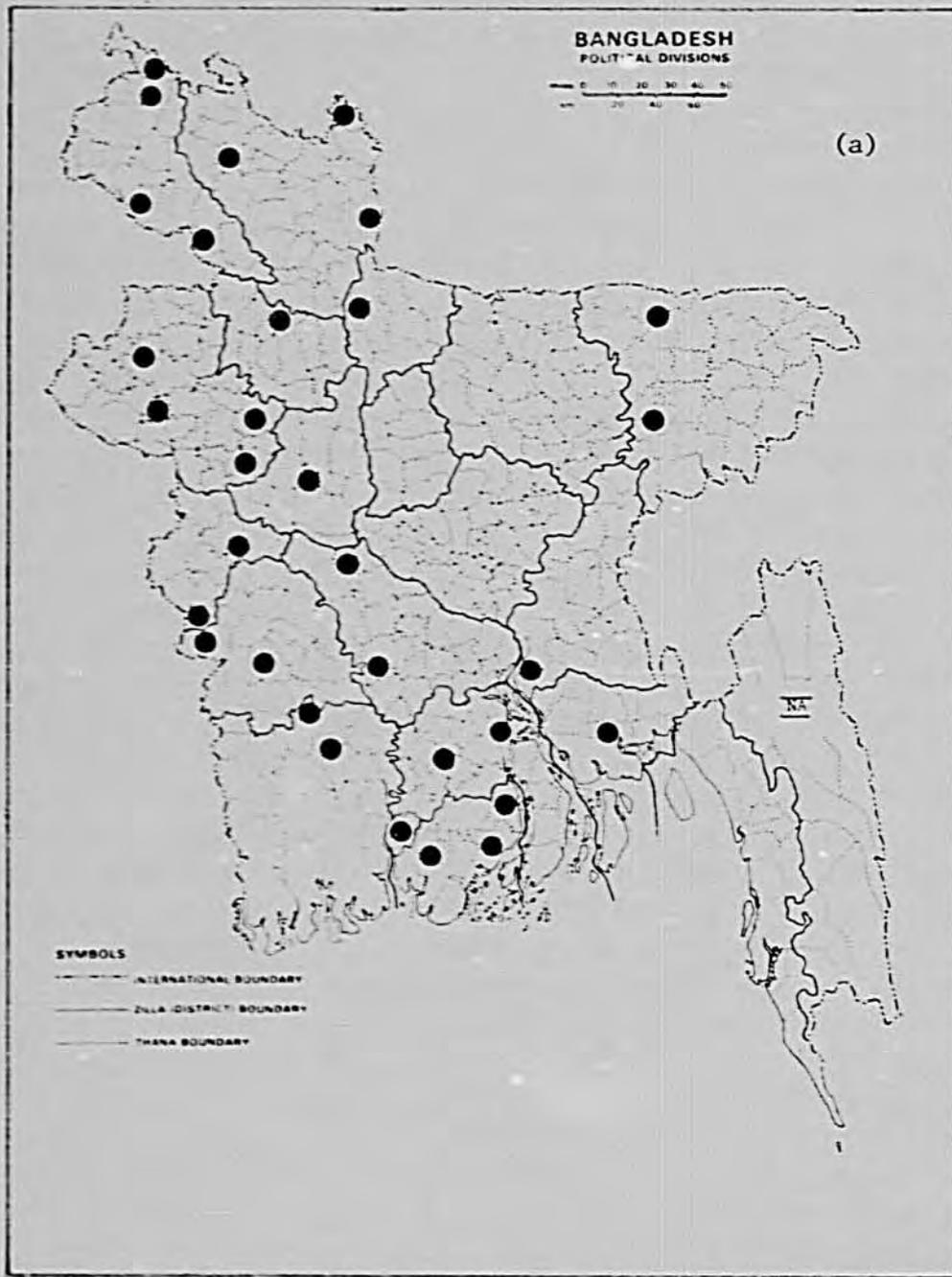


Figure 3. LOS Villages with (a) Highest Percentage Increase and (b) Lowest Percentage Increase in Revenue Potential Due to the Rate Structure Change.

increases in revenue potential as a result of the 1982 revision (Figure 3b).

District-Wise Variation

Tables 2 and 3 provide insights into the district-level relationships between plot sizes, land distribution, land productivity and tax potentials. Per acre revenue potentials for the districts were estimated by pooling all households in the sample villages of each district and repeating the calculations that were carried out on the village-level data. A projection of this sort exceeds the "representative validity" of the LOS, but, since actual LDT liability data are not disaggregated below the district level, it is a means of comparing our estimates of tax liabilities under the 1976 rates with the demand (assessments) recorded by the Government of Bangladesh.

The maps of district-wise revenue potentials (Figures 4a and 4b) show the familiar regional differentiation between core (active delta districts) and periphery (moribund delta districts). The basic pattern visible in Figure 4a, which maps "total taxable acreage per capita," recurs for other variables such as revenue potential per capita and revenue potential per acre for both the 1976 and the 1982 rates. We provide only one map of revenue potential per acre (Figure 4b) because maps of the other variables are exactly the same.

There are a number of reasons why our district-level projections will differ from government demand figures. The LOS was designed as a sample of "rural Bangladesh"--a subsector of the country which includes less commercial property and forested area than does the nation as a whole. This shortcoming in our data will lead to an underestimation of

TABLE 2
DISTRICT-LEVEL DATA

District ^a	Potential Tax Revenue Per Acre (takas)		Official Tax Demands (Assessments) Per Acre (FY 1980-81)	Value-Added Per Acre (takas) 1979-80	Average Plot Size ^b (acres)	Gini Coefficients		Distribution of Potential Tax Burden		Percentage Increase in Revenue Potential Due to Rate Change
	1982 Rates	1976-81 Rates				All Households	Landowning Households	1976-81 Rates	1982 Rates	
Dinaipur	29.1	9.0	6.3	2.7	3.73	.72	.63	.85	.86	224.9
Rajshahi	23.4	7.6	6.4	3.0	2.84	.67	.62	.82	.85	206.5
Fushtia	23.1	7.8	6.9	2.8	2.83	.67	.63	.82	.84	195.1
Pabna	22.9	8.2	5.5	3.1	2.61	.69	.66	.83	.85	179.3
Sylhet	21.7	7.5	5.8	3.1	2.49	.65	.63	.81	.84	191.3
Fhulna	20.9	7.6	4.6	2.4	1.97	.71	.68	.79	.83	178.0
Jessore	20.2	7.4	6.2	3.1	2.91	.65	.60	.81	.83	175.7
Bangpur	20.1	6.6	6.0	4.6	2.39	.69	.62	.81	.85	205.8
Batuakhali	17.7	5.9	6.5	2.9	2.01	.64	.61	.78	.83	202.1
Barisal	16.1	5.3	6.7	4.2	1.38	.67	.64	.78	.84	205.7
Mymensingh	14.9	5.9	3.9	3.9	1.95	.65	.61	.78	.82	152.0
Fogra	14.4	5.3	6.2	4.1	1.60	.68	.64	.79	.83	171.8
Noakhali	13.3	5.1	4.2	4.1	1.51	.68	.59	.78	.84	157.8
Faridpur	12.9	4.4	5.2	3.4	1.66	.65	.61	.75	.81	190.5
Chittagong	11.2	4.5	7.5	3.9	1.29	.78	.65	.83	.85	151.2
Tangail	10.5	4.0	3.0	3.6	1.61	.60	.57	.69	.78	161.6
Comilla	10.5	4.0	3.9	3.7	1.04	.67	.62	.74	.80	163.5
Dhaka	8.7	3.8	16.5	4.3	1.25	.61	.57	.69	.77	131.1
Mean of Districts	17.3	6.1	6.2	3.5	2.06	.67	.62	.79	.83	180.2
BANGLADESH ^c	18.9	6.6	6.3	3.5	2.03	.69	.64	.81	.85	188.6

^aRanked according to tax per acre, 1982.

^bTotal district landholdings divided by the number of landowning households in the district.

^cExcluding the Chittagong Hill Tracts.

SOURCES: Estimates computed by the authors using data from the 1978 Land Occupancy Survey; actual acreage per capita, per capita LDT liabilities, per acre LDT liabilities, and value-added per acre, based on data from the 1980 Statistical Yearbook of Bangladesh, Tables 2.2 and 4.48; and tax liability data provided by the Ministry of Law and Land Reforms of the Government of the People's Republic of Bangladesh.

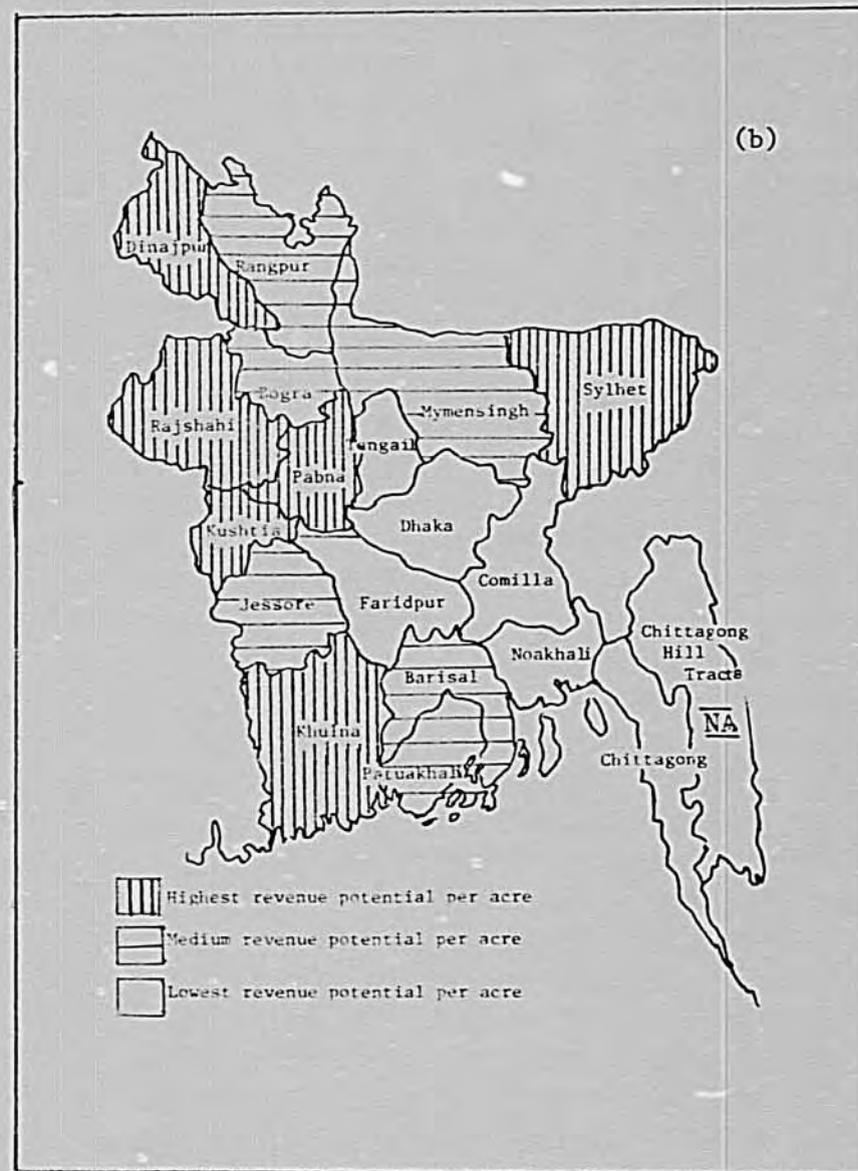
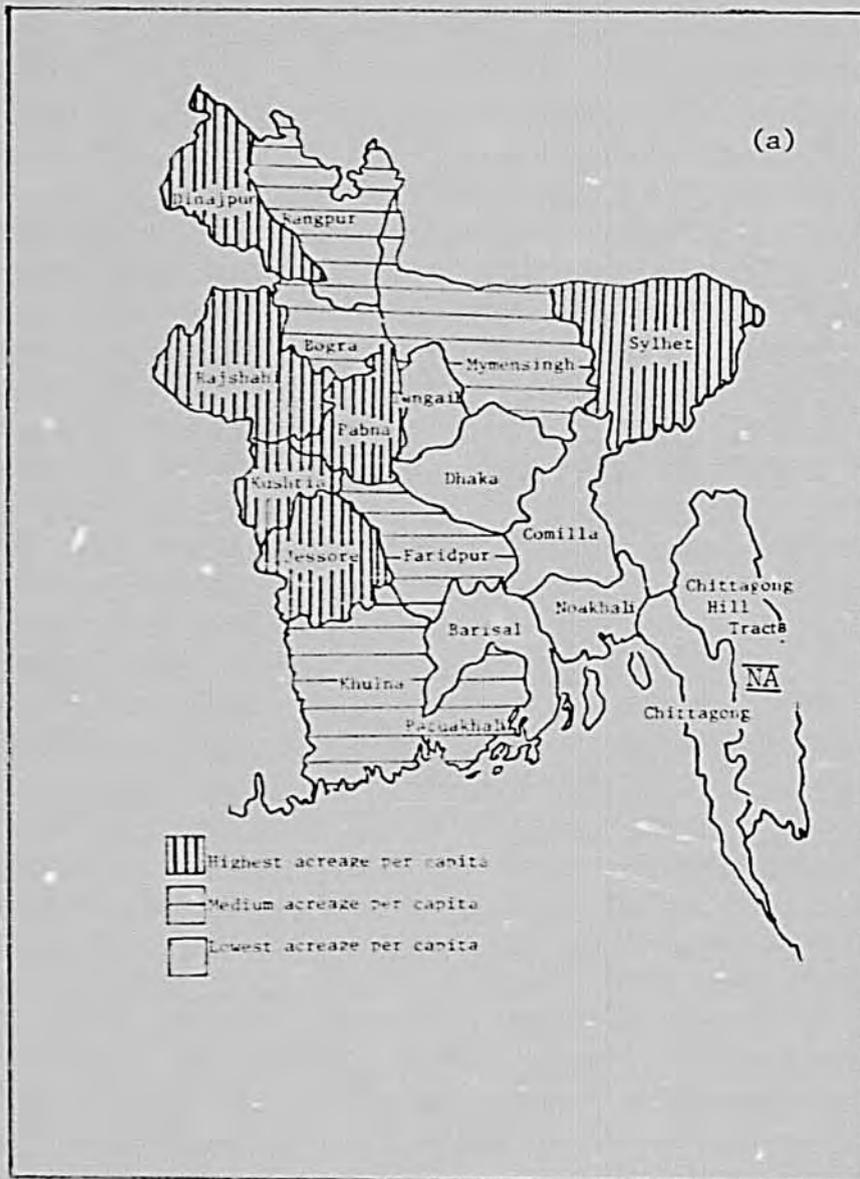


Figure 4. District-wise Revenue Potentials (a) Total Taxable Acreage Per Capita, (b) Revenue Potential Per Acre, Based on LOS Data.

TABLE 3

SIMPLE CORRELATION COEFFICIENTS BETWEEN LANDHOLDINGS CHARACTERISTICS AND
TAX POTENTIAL AT THE DISTRICT LEVEL^a

	Tax Potential Per Acre		Gini Coefficient For The Intra-District Distribution of Tax Potential		Value-Added Per Acre
	1976-81 Rates	1982 Rates	1976-81 Rates	1982 Rates	
Gini Coefficient for Land Distribution:					
Across All Households			.713	.708	
Across Landed Households	.501*	.471*	.659	.637	
Plot Size:					
All Households					-.655
Landed Households	.914	.930	.682	.582	-.611
Value-Added Per Acre	-.665	-.649			
Gini Coefficient for Tax Distribution:					
1976-81 Rates	.791				
1982 Rates		.734			

^aAll coefficients are statistically significant at the .01 level except for those with an asterisk which are significant at the .05 level.

district tax potentials, especially in Chittagong, Tangail and Khulna. We have no means of calculating the percent of the national LDT liability derived from commercial or forested land, but it is not thought to be substantial. Another problem with our projections stems from the small number of observations per district, especially in the case of the less-populated districts. And, as previously mentioned, our calculated potentials for individual villages are better estimates of what should be collected and worse estimates of what will be collected than are government demand figures.

In spite of the above-mentioned difficulties, a closer examination of district patterns is illuminating. Gini coefficients of inequality were calculated for the distribution of land among all households as well as for land distribution among only the landowning population. Gini coefficients for the distribution of potential tax liabilities were calculated for both sets of rate structures.¹ By comparing the mean of the district coefficients with the country-wide Gini coefficient for land, one sees that on average land is slightly more equally distributed within each district than it is within the country as a whole. For this reason the distribution of tax liabilities on average also will be more equally distributed within each district than it is nationwide. The difference in each case, however, is not great.

Since tax rates are positively related to holdings size, it is not surprising to find a high correlation between average plot size and per

¹ In order to compute all of the Gini coefficients, households were ranked according to size of landholdings and grouped into deciles.

acre tax potential across districts (Table 3, Figure 5). There is no statistical relationship between average holding size and inequality in the intra-district distribution of holdings among either all households or all landowning households. This finding suggests that higher-than-average holdings in some districts are not due to a concentration of large holdings among only the largest landholders. Instead, it appears that holdings are larger in all deciles in the districts with high-average holdings. (Average holding size may be related to conditions such as population density, soil, and climatic conditions.)

High inequality in land distribution is positively correlated with high tax potential per acre, but this relationship is not as strong as that between plot size and tax potential. It is interesting to note that the dominance of average holdings size over the distribution of holdings in the determination of per acre tax potential increases with the imposition of the new rate structure.

The most important finding relevant to tax policy revealed in Tables 2 and 3 is the existence of a strong, negative relationship between value-added per acre and average holding size (and therefore also between value-added per acre and tax potential per acre). If large holdings tend to be less productive on a per acre basis than small holdings because the land is worked less intensively, then the LDT should stimulate agricultural production by encouraging the division of large holdings. The direction of causality, however, may be reversed; that is, poor soil conditions may require a household in one district to farm a larger plot than a household earning the same agricultural income on a smaller but more productive plot in another district. If such is

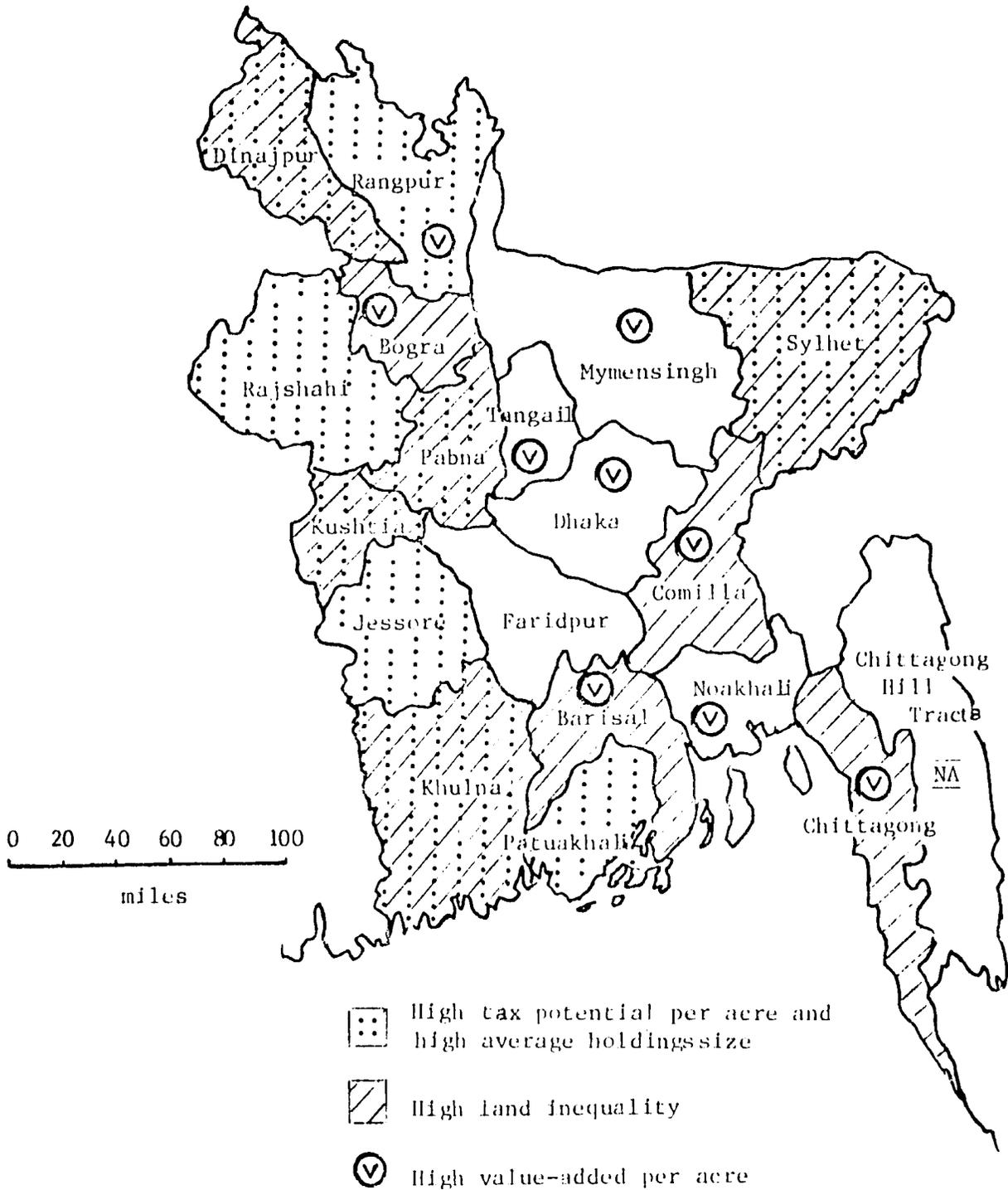


Figure 4. District-Level Relationships Between Holdings Characteristics and LDT Potential. "High" refers to the top nine districts for each variable. SOURCES: See Table 3.

the case, then the LDT is not equitable in the sense of taxing households of equal means equally. Unfortunately we cannot, at present, determine the basis of this important district-level relationship.¹ In any case, district totals of the tax demand assessed by the government are not significantly related to either value-added per acre or average holdings size.²

Surprisingly, despite a stronger relationship between plot size and tax potential per acre under the 1982 rates, there is a weaker relationship between tax potential and value-added per acre. We have, as yet, no explanation for this finding. One final relationship to note is between tax potential per acre and inequality in the intra-district distribution of potential tax liability. Districts with relatively high per acre tax potentials will be those in which the tax liability is most unevenly distributed.

Distributional Effects

The LOS data provide the basis for a precise description of the distributional impact of the 1982 LDT rate revision for this particular sample of households. The 34,745 households were ranked according to size of landholdings and grouped into deciles. Tables 4 and 5 show the distribution of population, landholdings and LDT liabilities across the deciles of households.

¹We lack information concerning the relationship between the size and productivity of landholdings within regions of comparable soil and climatic conditions.

²Correlation coefficients which are not even remotely significant are not included in Table 3.

TABLE 4

DISTRIBUTION OF POPULATION, LANDHOLDINGS, AND POTENTIAL TAX REVENUE
BY DECILE OF HOUSEHOLDS RANKED ACCORDING TO SIZE OF HOLDINGS

Decile of Households With Plot-Size Range (acres)	Percent of Sample Population Within Each Decile ^a	Percent of Total Landholdings Within Each Decile	Percentage of Total Revenue Potential	
			1976	1982
1st (0)	15.5 (15.5) ^b	0 (0)	0 (0)	0 (0)
2nd (0- .03)		.1 (.1)	0 (0)	.2 (.2)
3rd (.04- .10)	8.7 (24.2)	.4 (.5)	.2 (.2)	.3 (.5)
4th (.11- .29)	8.9 (33.1)	1.1 (1.6)	.4 (.6)	.3 (.8)
5th (.30- .60)	9.4 (42.5)	2.6 (4.2)	1.1 (1.7)	.4 (1.2)
6th (.61- 1.04)	9.3 (51.8)	4.6 (8.8)	1.9 (3.6)	.7 (1.9)
7th (1.05- 1.63)	10.1 (61.9)	7.6 (16.4)	3.1 (6.7)	1.2 (3.1)
8th (1.64- 2.53)	10.7 (72.6)	11.9 (28.3)	4.9 (11.6)	2.4 (5.5)
9th (2.54- 4.42)	12.1 (84.7)	19.3 (47.6)	7.9 (19.5)	8.0 (13.5)
10th (4.43-76.27)	15.3 (100.0)	52.4 (100.0)	80.4 (100.0)	86.5 (100.0)

^aCumulative percentages are provided in parentheses.

^bSince more than 10 percent of the households own no land, there is no way to define precisely the upper bound of the first decile. These numbers, therefore, refer to the first and second deciles combined.

SOURCE: Computed by the authors using data from the 1978 Land Occupancy Survey.

TABLE 5
 COMPARISON OF THE DISTRIBUTION OF LDT LIABILITY FOR LOS
 VILLAGES UNDER THE 1976 AND 1982 RATE STRUCTURES
 (in takas)

<u>Decile of Households</u>	<u>Total Liability</u>		<u>Liability Per Household</u>		<u>Per Capita Liability</u>		<u>Per Acre Liability</u>	
	<u>1976</u>	<u>1982</u>	<u>1976</u>	<u>1982</u>	<u>1976</u>	<u>1982</u>	<u>1976</u>	<u>1982</u>
1st	0	0	0	0	0	0	0	0
2nd	109	1,786	.03	.5	.01	.23	2.7	44.1
3rd	644	3,553	.2	1.0	.04	.20	2.7	14.9
4th	1,720	3,482	.5	1.0	.10	.19	2.7	5.5
5th	4,222	4,726	1.2	1.4	.22	.25	2.7	3.0
6th	7,490	8,322	2.2	2.4	.40	.44	2.7	3.0
7th	12,421	13,801	3.6	4.0	.61	.68	2.7	3.0
8th	19,308	27,294	5.6	7.9	.89	1.26	2.7	3.8
9th	31,375	91,240	9.0	26.3	1.28	3.73	2.7	7.9
10th	<u>317,832</u>	<u>985,917</u>	91.5	283.7	10.29	31.94	10.1	31.2
Total	395,121	1,140,122						

SOURCE: Computed by the authors using data from the 1978 Land Occupancy Survey.

The extreme inequality of the distribution of land is apparent from Table 4. 19.8 percent of the LOS households, representing 15.5 percent of the sample population, own .03 acres of land or less (of these, 14.7 percent of all households own no land, and comprise 11.6 percent of the sample population). The lower half of the households own less than 5 percent of the land while households in the top decile own over half the total sample acreage. The graduated rate structure of the LDT translates this skewedness in land distribution into a more extreme skewedness in the distribution of tax liabilities. Under the crudely progressive 1976 rates, 80 percent of total payments should have come from the largest 10 percent of landowners. As of 1982, this tax decile should be paying 86.5 percent of the LDT, while the top 20 percent of households, encompassing 27.4 percent of the sample population and 71.7 percent of the sample acreage, should provide over 94 percent of total tax payments.

Table 5 furnishes per acre, per capita, per household, and total tax liabilities for each decile. The column second from the right shows that the 1976 rate structure was proportional at 2.7 taka per acre over the acreage range (up to 8.25 acres) that comprises 96 percent of the sample households. For the 4 percent of the households with landholdings above 8.25 acres, the per acre liability jumped to 15 taka. 31.4 percent of the sample acreage consisted of this more highly taxed land.

The 1982 rate revision has increased the per acre payments of all

payment for the lowest holdings-size groups has increased by more than a factor of 15 due to the provision under the 1982 law for a minimum payment of one taka on all holdings. In contrast, the tax per acre owed by the 5th through 7th deciles of households has increased by only 11 percent. Per acre payments of the highest decile have tripled. As a result of these changes, the lowest and highest holdings-size groups will contribute a larger share of the total LNT payment for the sample. Thus the tax has been made less progressive at the lower end of the rate structure (covering the lower 50 percent of the households) and more progressive at the upper end (covering the top 95 percent of landholdings). This change in the shares of tax payments resulting from the revision of rates is presented graphically in Figure 6. If one assumes that household income varies directly with the size of landholdings, the minimum payment provision makes the tax highly regressive within the first tax bracket (holdings below 2.00 acres). This bracket encompasses 74 percent of the sample households. The tax is progressive over the range of holdings greater than 2.00 acres into which 26 percent of the households fall and from which 96 percent of the tax payments should originate. One final fact illustrated in Table 3 is that, since households with larger holdings tend to have more members, per capita tax liabilities rise less sharply than do per household liabilities as acreage increases.

Considerations for Future Research and Policy

The present analysis prompts several suggestions concerning directions that future research and policy on land taxation might

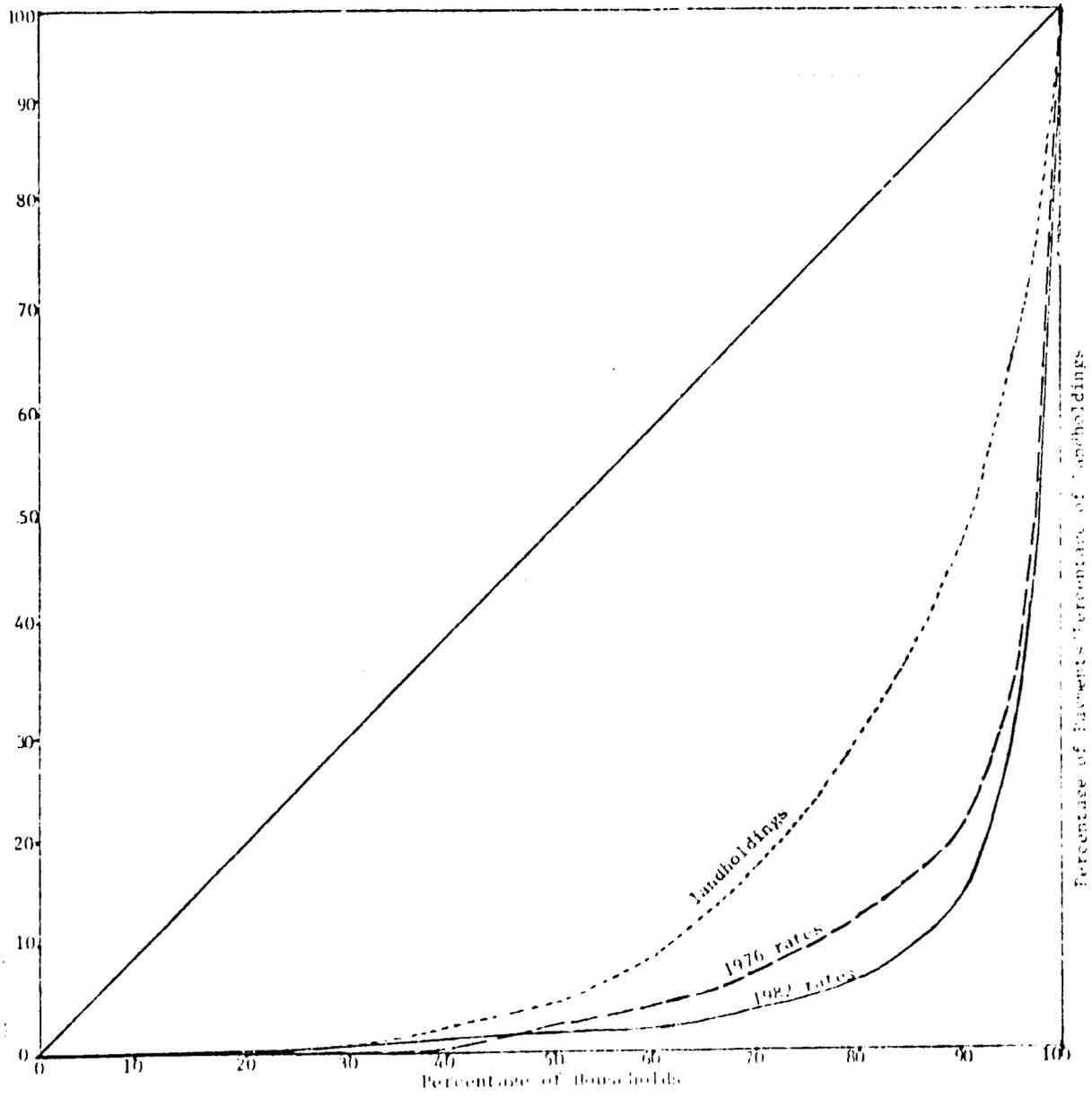


Figure Comparison of Landholdings Shares and Tax Potential Shares under 1976 and 1982 Rate Structures.

pursue. These ideas are limited to thoughts that directly emanate from this analysis, rather than broader issues related to the LDT which are the subject of another report.

Research Priorities

This study demonstrates an important use of land-ownership data which previously had been neglected. In this age of reduced funds for research, multiple uses for data add to the efficiency of research expenditures. In this case, the data previously collected were aimed at exposing the national pattern of landlessness especially in reference to possible land reform needs. We have used the data to indicate revenue potentials from a land tax; data on tax potentials are rarely easily available to planners so that our use of the LOS data is a valuable contribution.

Landownership patterns, however, change through time. In Bangladesh most analyses show that landlessness is increasing, but it is less clear how patterns of landownership are changing (i.e., there may be a greater increase in the largest holdings, or greater increase in small and medium holdings). Planned alterations in the land ownership structure through land reform measures could result in a rather different pattern of revenue potential from the LDT--of which planners should be aware when both revised ownership patterns and tax rates are considered. The 1978 LOS gathered high-quality data that can provide policy input in several directions including taxation. Compared to other South Asian countries, Bangladesh now possesses one of the best studies of land occupancy in the region, and one that could well serve as a model for other countries. This healthy situation should be

capitalized on in two ways: by future updates at regular intervals, preferably every five years, and along the lines of the 1978 LOS; and by case studies in selected villages to clarify certain issues and complement the survey data with in-depth field data. We will discuss these two points in greater detail.

Regular re-surveys are possible in terms of personnel capacity of the Bangladesh Bureau of Statistics which has a trained representative stationed at each thana throughout the country. A training session organized once every five years to teach rigorous surveying methods would not be wasted effort, and could be funded through a combination of internal and external resources. Since the Jannuzi-Peach approach required only one week, or perhaps two in the largest villages, for conducting the survey, the demand on the time of the BBS local-level personnel would not be too burdensome. Furthermore, the BBS is interested in promoting improved local-level statistics, particularly in the domain of resource mobilization.¹ The current LOS survey could be shortened, with the main questions focusing on land ownership and tenancy, and reduced sections on irrigation and fertilizer use.²

Case studies in specific localities are a serious need because there are many questions that survey data like that gathered in the LOS cannot answer in the domain of land taxation. Intensive fieldwork by

¹ Interview with Gulam Rabbani, Chief, Bangladesh Bureau of Statistics, September 1982, Dhaka.

² Jannuzi and Peach, 1980, mention the difficulty of obtaining dependable data on such questions as nature of irrigation on family land, types and quantity of fertilizer used, etc.

indigenous anthropologists or rural sociologists in, at minimum six locations, for the duration of six months to one year every five years would not be exorbitantly expensive and would yield important information on the following: more accurate data on the largest landholdings and on landholdings of absentee owners; information on the difference between survey data on landownership within one village and the land registration records for that village; data on extensiveness of scattered landholdings by owners within different tax jurisdictions, thus making true assessments more difficult; and, finally, the study of actual tax payment patterns by categories of households.

While in-depth fieldwork in a handful of villages would not provide definitive information applicable to the whole nation, it would yield rich data on selected check-points. The village sites would be carefully selected for representativeness. Furthermore, if these case studies were conducted in the same village every five years, an excellent time-series of data could be generated which would help in the understanding the nature of change in landholdings and land tax payments through time for various social classes.

One might claim that such research is an unnecessary luxury. But, one important move toward fiscal decentralization would be to make the LDT a local (perhaps thana-level) tax. In that case, the LDT would be the thana's major revenue source. Putting research effort into the LDT would have a high pay-off, not just in the long run, but also in the short run when decisions have to be made about rate structures.

Policy Priorities

Two of the most important policy issues that emerge from our analysis are: the equity of the current LDT rate structure, and the possible need for equalizing policy due to the regional disparity in revenue potential (if the LDT were made into a local tax).

The equity question is complicated. According to the present rate structure, the larger landowners account for a very large proportion of the tax revenue, but the smallest holders are bearing a relatively large burden. Furthermore, since the tax is assessed only according to plot size and not plot quality, there may also be severe inequity built into the assessments. The subject of equity under the LDT is further complicated by the probable inequitable compliance pattern, with small and medium holders being more compliant than the largest landowners.

The current rate structure, however, may possess merit in terms of encompassing more of the agricultural sector within the taxpaying population. Also, horizontal equity suggests that even small landowners should be taxed since urban dwellers earning minimal incomes are taxed, albeit indirectly, on their purchases of goods.

The other major policy implication of the present study rises out of the regional pattern of revenue potential. If the thana were to assume the LDT as its major revenue source, then thanas in the active delta districts would have a smaller tax base than districts on the periphery. The central government may choose to deal with this regional disparity, perhaps through a system of equalizing grants.

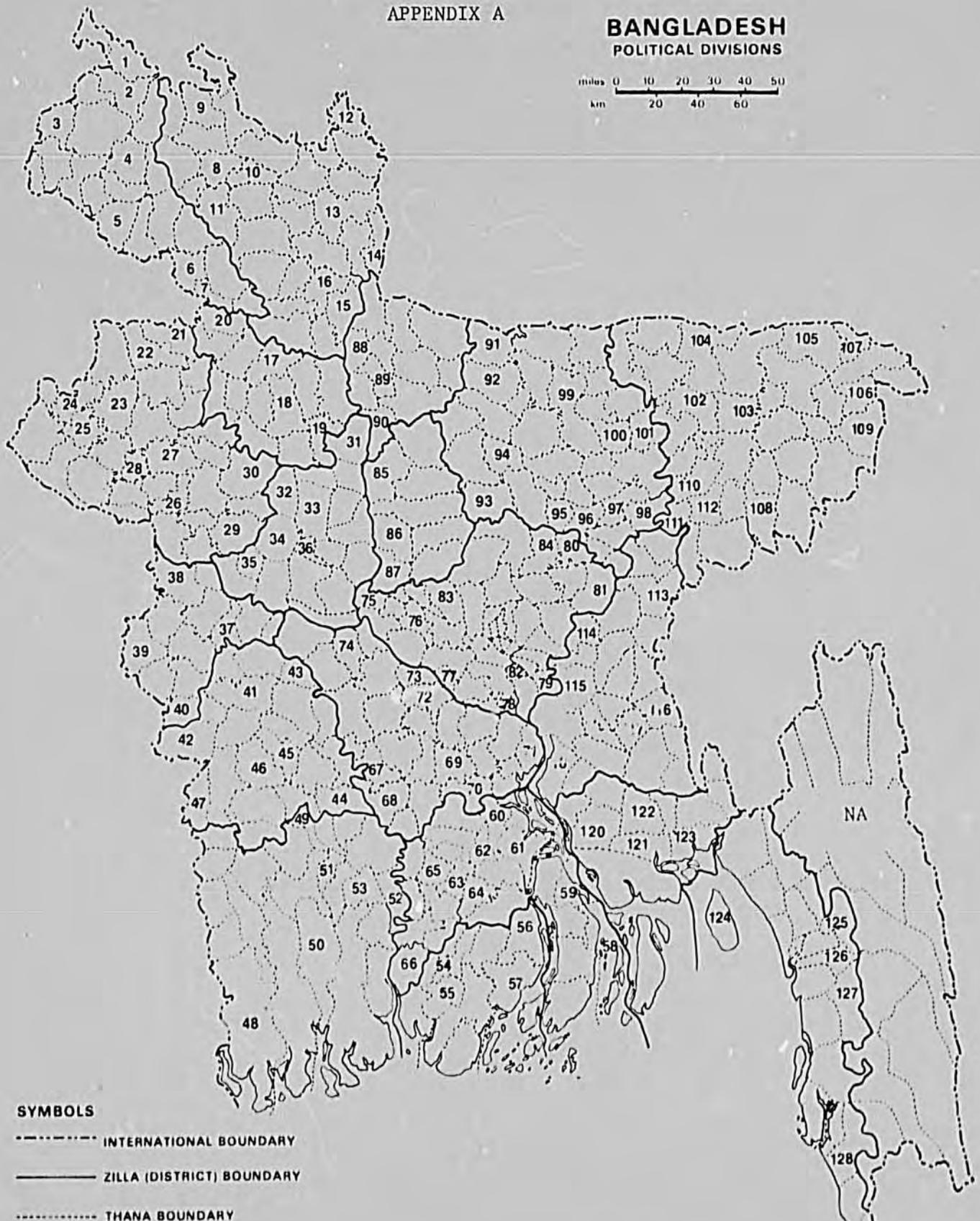
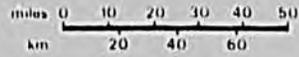
This latter problem of regional disparity might be reduced if the Government of Bangladesh were to revive the historic practice of taxing

land productivity, since the active delta districts have the most productive land. While acreage and holdings patterns, under a tax based only on plot size, place the active delta districts in the low-revenue-potential category, these same districts would move into a higher category if the tax were based on productivity. Additionally, such a change would also improve the revenue growth potential of the LDT.

Conclusion

The 1978 Land Occupancy Survey reveals much about revenue potentials from the Land Development Tax throughout rural Bangladesh. The analysis also suggests directions of follow-up research to improve our knowledge of actual ownership, assessments, and tax-paying behavior. With the 1978 LOS, Bangladesh now possesses one of the best sources of data on landholding patterns in South Asia. That advantage should not be lost. This study also points to the need for reintroducing land productivity into the LDT rate structure, rather than taxing land only according to holding size. To that end, more detailed study is needed concerning available information on land productivity (extant records in land registration offices may provide some help) and the potential costs of regularly updating productivity data.

APPENDIX A

BANGLADESH
POLITICAL DIVISIONS

Thanas in which the 1978 Land Occupancy Survey villages are located. (Numbers correspond to the those in the tabular data of Appendix A). Note: This map shows a division between the districts of Mymensingh and Jamalpur which did not exist at the time of the 1978 LOS.

APPENDIX B

LOS SAMPLE VILLAGES, POPULATION, ACREAGE, AND TAX POTENTIALS

Village ^a	Population	Acres Per Capita	Tax Potential Per Capita		Tax Potential Per Acre		Percentage Increase in Revenue Due to Rate Change
			1976	1982	1976	1982	
<u>Dinajpur District</u>							
1. Panchagarh ^b	2627	0.55	5.35	16.60	9.68	30.00	210
2. Bodia	4195	0.49	4.67	17.00	9.52	34.60	263
3. Baliadangi	1228	0.44	3.03	8.50	6.82	19.10	180
4. Birgonj	745	0.59	5.64	15.90	9.54	26.80	181
5. Biral	725	0.48	4.44	13.30	9.25	27.60	199
6. Fulbari	908	0.67	6.15	19.90	9.21	29.80	223
7. Hakimpur	949	0.38	1.85	4.75	4.87	12.50	157
<u>Rangpur District</u>							
8. Kishoregonj	4563	0.31	2.01	7.91	6.46	25.40	293
9. Dimla	4322	0.32	1.23	3.55	3.79	11.00	189
10. Gangachara	569	0.42	2.84	8.05	6.73	19.10	184
11. Badargonj	3534	0.38	2.59	6.90	6.85	18.30	166
12. Bhurangamari	3515	0.39	2.96	8.66	7.65	22.30	192
13. Ulipur	1715	0.22	1.11	2.61	5.05	11.90	135
14. Roumari	1698	0.58	5.75	17.60	9.85	30.20	206
15. Fulchari	1051	0.14	0.83	2.07	5.79	14.40	149
16. Gaibondha	483	0.24	0.64	1.61	2.70	6.75	150
<u>Bogra District</u>							
17. Shibgonj	2655	0.32	1.78	5.15	5.63	16.30	190
18. Bogra	1782	0.21	1.01	2.59	4.80	12.30	157
19. Dhunat	959	0.23	0.99	2.64	4.23	11.20	166
20. Panchbibi	755	0.27	1.62	3.78	6.01	14.00	133
<u>Rajshahi District</u>							
21. Dhamirhat	1008	0.37	1.81	4.09	4.94	11.20	126
22. Patnitola	1018	0.31	1.34	3.70	4.39	12.10	176
23. Niamatpur	860	1.02	12.70	43.30	12.40	42.30	241
24. Comastapur	634	0.29	2.09	5.58	7.20	19.20	166
25. Nachol	1078	0.34	3.11	8.85	9.03	25.70	184
26. Puthia	662	0.45	3.49	7.44	7.79	16.60	113
27. Baymara	743	0.28	0.91	2.25	3.31	8.19	147
28. Mohanpur	580	0.30	1.39	4.06	4.69	13.70	192
29. Baraigram	1470	0.35	2.21	6.72	6.24	18.90	204
30. Singara	1260	0.38	2.52	9.53	6.64	25.10	277

APPENDIX B (CONT.)

<u>Village^a</u>	<u>Population</u>	<u>Acres Per Capita</u>	<u>Tax Potential Per Capita</u>		<u>Tax Potential Per Acre</u>		<u>Percentage Increase in Revenue Due to Rate Change</u>
			<u>1976</u>	<u>1982</u>	<u>1976</u>	<u>1982</u>	
<u>Pabna District</u>							
31. Kazipur	1200	0.26	1.50	3.19	5.85	12.40	112
32. Tarash	919	0.76	7.40	19.20	9.70	25.20	160
33. Ullahpara	2488	0.22	1.42	3.87	6.39	17.40	173
34. Chatmohar	782	0.38	2.84	6.53	7.55	17.40	130
35. Atgharia	974	0.36	2.93	7.42	8.16	20.70	153
36. Faridpur	3800	0.39	3.46	10.90	8.79	27.70	215
<u>Kushtia District</u>							
37. Kushtia	2906	0.34	2.38	7.49	7.05	22.20	215
38. Daulatpur	715	0.39	2.79	7.42	7.24	19.20	166
39. Melharpur	1593	0.50	4.38	12.30	8.72	24.40	180
40. Jibannagar	797	0.36	3.01	9.18	8.48	25.90	205
<u>Jessore District</u>							
41. Jhenaidah	1502	0.28	1.57	3.96	5.58	14.10	152
42. Mohespur	847	0.71	7.82	25.10	11.00	35.20	221
43. Sripur	842	0.26	1.51	4.08	5.86	15.80	170
44. Kalia	937	0.49	2.79	7.12	5.68	14.50	155
45. Bagherpara	1165	0.52	4.13	9.42	7.89	18.00	128
46. Kotwali	962	0.49	3.64	10.60	7.46	21.70	190
47. Sursa	1480	0.18	0.85	2.27	4.78	12.80	168
<u>Phulna District</u>							
48. Shyamnagar	1105	0.41	4.35	9.11	10.60	22.20	110
49. Fultola	3896	0.24	1.28	3.85	5.38	16.20	201
50. Dacope	1490	0.58	4.78	13.30	8.23	22.90	179
51. Khulna	4272	0.19	1.64	5.21	8.69	27.60	217
52. Kochua	718	0.28	1.28	2.74	4.54	9.67	113
53. Bagerhat	930	0.29	1.92	5.03	6.54	17.20	163
<u>Patuakhali District</u>							
54. Betagi	3241	0.30	1.42	3.93	4.79	13.30	177
55. Barguna	1277	0.38	2.09	7.08	5.56	18.80	238
56. Ranphul	965	0.30	1.37	3.98	4.56	13.20	190
57. Galachipa	1498	0.38	3.27	10.10	8.49	26.30	210

APPENDIX B (CONT.)

<u>Village^a</u>	<u>Population</u>	<u>Acres Per Capita</u>	<u>Tax Potential Per Capita</u>		<u>Tax Potential Per Acre</u>		<u>Percentage Increase in Revenue Due to Rate Change</u>
			<u>1976</u>	<u>1982</u>	<u>1976</u>	<u>1982</u>	
<u>Barisal District</u>							
58. Monpura	2074	0.21	1.17	2.39	5.51	11.20	104
59. Daulatkhan	1203	0.13	0.53	1.36	4.17	10.60	154
60. Muludi	1035	0.29	1.65	4.67	5.62	15.90	183
61. Mehendigonj	1428	0.24	1.46	5.13	6.05	21.30	253
62. Babugonj	598	0.14	0.37	0.63	2.70	4.60	070
63. Jhalakati	2234	0.24	1.15	4.65	4.72	19.10	306
64. Nalchity	930	0.24	1.30	3.10	5.45	13.00	138
65. Swarupkati	2770	0.27	1.33	3.26	4.92	12.10	146
66. Mathbori	2260	0.24	1.46	5.79	6.04	24.00	297
<u>Faridpur District</u>							
67. Kasiani	1025	0.33	1.68	6.60	5.03	19.80	294
68. Gopalgonj	554	0.19	0.52	0.97	2.70	5.08	088
69. Madaripur	742	0.18	0.50	1.15	2.70	6.22	130
70. Kulkini	915	0.19	0.66	1.59	3.51	8.42	140
71. Bhedurgonj	708	0.20	0.88	2.44	4.46	12.30	176
72. Sadarpur	964	0.35	2.06	4.96	5.96	14.30	140
73. Charbhadrasan	212	0.32	1.81	4.88	5.66	15.20	169
74. Rajbari	617	0.31	1.05	3.49	3.35	11.20	234
<u>Dhaka District</u>							
75. Daulatpur	921	0.28	1.23	3.03	4.37	10.80	147
76. Manikgonj	871	0.17	0.47	1.03	2.70	5.96	121
77. Dohar	1381	0.20	0.55	1.42	2.70	7.01	160
78. Tongibari	1133	0.13	0.36	0.83	2.70	6.18	129
79. Garzaria	3077	0.19	0.78	2.10	4.03	10.80	169
80. Monohardi	1059	0.21	0.57	1.16	2.70	5.52	104
81. Raipura	1399	0.14	0.38	0.61	2.70	4.34	061
82. Fatulla	1391	0.09	0.24	0.53	2.70	6.04	124
83. Dhamrai	705	0.27	1.11	2.45	4.08	9.01	121
84. Kapasia	1303	0.33	1.83	3.89	5.58	11.80	112
<u>Tangail District</u>							
85. Bhuapur	339	0.28	1.18	3.15	4.16	11.10	166
86. Tangail	3364	0.24	0.93	2.55	3.92	10.70	174
	736	0.28	1.21	2.54	4.26	8.92	109

APPENDIX B (CONT.)

Village ^a	Population	Acres Per Capita	Tax Potential Per Capita		Tax Potential Per Acre		Percentage Increase in Revenue Due to Rate Change
			1976	1982	1976	1982	
<u>Mymensingh District</u>							
88. Islampur	1182	0.43	3.78	11.90	8.87	28.00	216
89. Melanduha	2058	0.30	1.68	4.26	5.63	14.30	153
90. Sarishabari	953	0.29	1.64	3.47	5.69	12.10	112
91. Haluaghat	2299	0.38	2.32	5.76	6.06	15.00	148
92. Fulpur	702	0.38	2.97	7.18	7.91	19.10	142
93. Bhaluka	2286	0.43	2.94	7.53	6.84	17.60	157
94. Trisal	4263	0.28	1.10	2.81	3.92	9.98	155
95. Pakundia	1594	0.21	0.68	1.60	3.24	7.57	134
96. Katladia	1177	0.30	1.98	4.02	6.69	13.60	103
97. Nikli	1562	0.12	0.62	1.53	5.32	13.00	144
98. Austagram	734	0.25	1.11	2.83	4.35	11.10	155
99. Kendua	689	0.19	0.66	1.36	3.54	7.32	107
100. Madon	1352	0.35	2.83	6.53	8.15	18.80	131
101. Khaliajuri	748	0.25	1.32	3.39	5.32	13.60	157
<u>Sylhet District</u>							
102. Derai	1421	0.41	2.38	6.45	5.83	15.80	171
103. Jagannathpur	726	0.42	3.15	6.15	7.53	14.70	095
104. Sunamgonj	3213	0.61	6.29	20.60	10.30	33.70	227
105. Gowainghat	859	0.44	3.36	8.32	7.69	19.00	148
106. Beanibazar	1508	0.18	0.47	0.80	2.70	4.58	069
107. Jaintiapur	751	0.39	1.89	4.72	4.80	12.00	150
108. Sreemangal	327	0.28	1.19	3.09	4.24	11.00	160
109. Baralekha	980	0.24	0.87	2.06	3.67	8.69	137
110. Bantachong	693	0.46	3.27	10.40	7.05	22.50	218
111. Lakhai	1886	0.32	1.78	4.86	5.64	15.40	173
112. Hobiganj	858	0.32	2.05	4.77	6.41	14.90	132
<u>Comilla District</u>							
113. Brahmanbaria	1716	0.21	0.98	2.02	4.65	9.58	106
114. Bancharampur	4927	0.16	0.54	1.04	3.29	6.38	094
115. Dautkandi	695	0.21	0.71	1.67	3.42	8.08	136
116. Kotwali	2170	0.13	0.35	0.69	2.70	5.27	095
117. Barura	881	0.17	0.58	1.23	3.50	7.37	111
118. Chandpur	2531	0.10	0.78	3.59	8.20	37.60	359
119. Kachua	697	0.26	0.71	1.70	2.70	6.51	141

APPENDIX B (CONT.)

<u>Village^a</u>	<u>Population</u>	<u>Acres Per Capita</u>	<u>Tax Potential Per Capita</u>		<u>Tax Potential Per Acre</u>		<u>Percentage Increase in Revenue Due to Rate Change</u>
			<u>1976</u>	<u>1982</u>	<u>1976</u>	<u>1982</u>	
<u>Noakhali District</u>							
120. Lakshmipur	4249	0.11	0.41	0.77	3.66	6.95	090
121. Sudharam	3816	0.32	2.26	6.80	7.12	21.40	201
122. Begumganj	3469	0.15	0.75	1.37	4.92	9.02	083
123. Sonagazi	3417	0.19	0.51	1.10	2.70	5.86	117
<u>Chittagong District</u>							
124. Sandwip	2497	0.08	0.25	0.55	3.34	7.27	118
125. Rangunia	1326	0.03	0.07	0.16	2.70	6.25	132
126. Putia	897	0.13	0.48	1.13	3.77	8.94	137
127. Satkania	1527	0.18	0.75	2.01	4.14	11.10	168
128. Ramu	1676	0.20	1.16	2.98	5.79	14.80	156

^aActual village names are confidential information of the Bangladesh Bureau of Statistics. Villages are here referred to by the name of the thana in which each is located.

^bNumbers correspond to those on the LOS Sample Village Map (Appendix A).

SOURCE: Computed by the authors using data from the 1978 Land Occupancy Survey.

APPENDIX C

RATES OF LAND DEVELOPMENT TAX FOR AGRICULTURAL LAND

1. Rate structure in effect from 1976 to April 1982
 - a. 2.7 paisa^a per decimal^b on holdings up to 8.25 acres
 - b. 15 paisa per decimal for holdings greater than 8.25 acres

2. Rate structure effective as of April 1982
 - a. Not more than 2.00 acres (a) 3 paisa per decimal subject to a minimum of 1 taka
 - b. More than 2.00 acres, but does not exceed 5.00 acres. (b) Tk. 6.00 for 2.00 acres plus 15 paisa per decimal for the land in excess of 2.00 acres.
 - c. More than 5.00 acres, but does not exceed 10.00 acres. (c) Tk. 51.00 for 5.00 acres plus 36 paisa per decimal for the land in excess of 5.00 acres.
 - d. More than 10.00 acres, but does not exceed 15.00 acres. (d) Tk. 231.00 for 10.00 acres plus 60 paisa per decimal for the land in excess of 10.00 acres.
 - e. More than 15.00 acres, but does not exceed 25.00 acres. (e) Tk. 531.00 for 15.00 acres plus 95 per excess of 15.00 acres.
 - f. More than 25.00 acres. (f) Tk. 1481.00 for 25.00 acres plus Tk. 1.45 per decimal for the land in excess of 25.00 acres.

^aThere are 100 paisa in one taka.

^bThere are 100 decimals in one acre.