

PNAAV-913

47252

ECUADOR FISCAL ADMINISTRATION STUDIES
STAFF PAPER No. 3

THE INCOME TAX IN SELECTED LATIN
AMERICAN AND CARIBBEAN NATIONS: A
CROSS NATIONAL COMPARISON WITH SPECIAL
REFERENCE TO THE CASE OF ECUADOR

HERNANDO R. GARZON

LOCAL REVENUE ADMINISTRATION PROJECT
THE METROPOLITAN STUDIES PROGRAM
THE MAXWELL SCHOOL OF CITIZENSHIP AND PUBLIC AFFAIRS
SYRACUSE UNIVERSITY
SYRACUSE, NEW YORK 13244-1090

JUNE 1986

ECUADOR FISCAL ADMINISTRATION STUDIES

David Greytak, Project Director

Syracuse University

SENIOR STAFF

Jorge Martinez
Kenneth Stacey

Georgia State University
Private Consultant

RESEARCH ASSOCIATES

Oakley Austin
Francisco Gonzalez
Caroline Fawcett
Hernando Garzon
Bruce Riddle

Private Consultant
Private Consultant
Johns Hopkins University
Syracuse University
Syracuse University

RESEARCH ASSISTANTS

Victor Mendez
Miguel Osio
Ramon Sarthou

Syracuse University
Syracuse University
Syracuse University

LOCAL REVENUE ADMINISTRATION PROJECT

Larry Schroeder (Public Administration) Director

FACULTY ASSOCIATES

Roy Bahl	Economics	Jerry Miner	Economics
David Greytak	Economics	Barbara Miller	Anthropology
Bernard Jump, Jr.	Public Admin.	Michael Wasylenko	Economics
William Mangin	Anthropology		

RESEARCH ASSOCIATES

Hernando Garzon	Social Science	Bruce Riddle	Data Analyst
-----------------	----------------	--------------	--------------

RESEARCH ASSISTANTS

Mahesh Bhawe	Social Science	Ranjana Madhusudhan	Economics
Libby Dalton	Public Admin.	Victor Mendez	Economics
William Duncombe	Public Admin.	Miguel Osio	Economics

CONSULTANTS

James Alm	University of Colorado, Tax Policy
Richard Bird	University of Toronto, Tax Policy
John Due	University of Illinois, Tax Policy
Carolyn Fawcett	Georgetown University, Public Administration
James Follain	University of Illinois, Tax Policy
William Fox	University of Tennessee-Knoxville, Tax Policy
Daniel Holland	M.I.T., Tax Policy
Jorge Martinez	Georgia State University, Economics
Charles McLure	Hoover Institute, Tax Policy
Oliver Oldman	Harvard Law School, Tax Administration
Alek Rozental	Private Consultant, Tax Policy
Kenneth Stacey	Private Consultant, Customs Administration

SYRACUSE UNIVERSITY

Melvin A. Eggers

Chancellor

THE MAXWELL SCHOOL

Guthrie Birkhead

Dean

THE METROPOLITAN STUDIES PROGRAM

Larry Schroeder
David Greytak
Roy Bahl

Public Administration/Economics
Economics
Maxwell Professor of Public Economy

Director
Assoc. Director
Senior Research Associate

SENIOR RESEARCH ASSOCIATES

Stuart Bretschneider
Jesse Burkhead
Vernon Greene
William Johnson
Bernard Jump, Jr.
Steve Haggblade
William Mangin
Barbara Miller
Jerry Miner

Public Admin.
Econ./Pub. Admin.
Public Admin.
Economics
Public Admin.
Public Admin.
Anthropolgy
Anthropology
Economics

M. Moussavian
Jan Ondrich
John Rees
Bruce Riddle
Seymour Sacks
John Schnell
Jeffrey Straussman
Michael Wasylenko

Economics
Economics
Geography
Data Analyst
Economics
Economics
Public Admin.
Economics

RESEARCH ASSOCIATES

Hernando Garzon
Richard Joseph

Social Science
Public Admin.

James Wozny

Economics

GRADUATE RESEARCH ASSISTANTS

Marcel Allen
Douglas Amissah
Marjorie Baldwin
Douglas Benedict
Mahesh Bhawe
Libby Dalton
William Duncombe
Haeduck Lee
Ranjana Madhusudhan
Patrick Mauldin
Victor Mendez
Carole Miller

Economics
Public Admin.
Economics
Economics
Social Science
Public Admin.
Public Admin.
Economics
Economics
Economics
Economics
Economics
Economics

Daniel Mullins
Matthew Murray
Miguel Osio
Carrie Penner
Stuart Schillinger
Wanda Schulman
Brenda Spillman
Julie Stannard
Kurt Svendsen
Sally Wallace
Dana Weist

Public Admin.
Economics
Economics
Public Admin.
Public Admin.
Public Admin.
Economics
Public Admin.
Public Admin.
Economics
Public Admin.
Economics
Public Admin.

STAFF

Carol Babcock
Cheryl Ackerson
Susan deGuzman
Martha Grandinetti
Esther Gray

Admin. Officer
Secretary
Secretary
Secretary
Secretary

Allison Henry
Sandra Maitland
Gail Penniman
Ellen Strbak

Editorial Asst.
Receptionist
Secretary
Librarian

JAMAICA OFFICE

George Whitehouse
Mathias Bourgeois

Director
Sales Tax Advisor

Geraid Doherty
Thomas Hickey

Customs Advisor
Income Tax Advisor

ECUADOR FISCAL ADMINISTRATION STUDIES STAFF PAPERS

<u>Number</u>	<u>Title</u>	<u>Author</u>
1	Sensitivity Analysis and Evaluation of the Ecuadorian Personal Income Tax	Jorge Martinez
2	Ecuador: Design of an Improved Customs Collection System	Keri Stacey
3	The Income Tax in Selected Latin American and Caribbean Nations: A Cross National Comparison with Special Reference to the Case of Ecuador	Hernando Garzon
4	The Impact of Intergovernmental Grants on Local Governments in Ecuador: A Study of FONAPAR	David Greytak
5	FONAPAR: An Institutional Assessment	Caroline Fawcett

ACKNOWLEDGEMENTS

The author would like to express his gratitude to Sr. Edmundo Naranjo Recalde, Director of Internal Revenue; and especially to Aida Villacres, Chief of the Internal Revenue Planning Department; as well as to Pilar Almeida, Chief of the Statistics Office for their interest and assistance during our visit to the Ministry of Finance in Ecuador.

FOREWORD

The taxation of personal income is a major source of central government revenues throughout the western hemisphere. In this paper Hernando Garzon reviews the structure and performance of the income tax in fifteen Latin American and Caribbean nations. His analysis suggests that there is a certain commonality in the structure and performance of central government income taxes. In particular he finds that while there are regional differences, the importance and productivity of income taxation is related to level of development.

The comparative analysis suggests that the structure of the income tax in Ecuador, while perhaps a bit more complicated, is about what would be expected given the country's level of income. However, relative to other countries, Ecuador's reliance upon, and the burden of the tax are below what could be expected. While some of the underlying reasons are identified in the course of this review, the structure and operation of Ecuador's income tax are analyzed in a companion report.

This report has been prepared as part of a project involving three studies undertaken at the request of the Ecuadorian Ministry of Finance. The other studies are concerned with intergovernmental aid and customs.

Hernando Garzon is a Research Associate in the Metropolitan Studies Program at Syracuse University. His background includes field work and study of municipal finances and property taxation in Central and South America.

This project is part of the Local Revenue Administration Project (LRAP) of Syracuse University and is supported under a cooperative agreement (AID/DSAN-CA-0198) with the United States Agency for International Development, Washington, DC. The views and interpretations in this publication are those of the author and should not be attributed to the United States Agency for International Development.

David Greytak
Project Director
Ecuador Fiscal Administration Studies
Syracuse University
June 1986

TABLE OF CONTENTS

	<u>Page No.</u>
Introduction	1
Comparison of the Role of Other Taxes and the Income Tax	2
Economic Indicators and the Income Tax	2
GNP Per Capita and Central Government Taxes	2
Relation between Tax Ratios and Fiscal Centralization	8
Relation between the Income Tax and Central Governments Tax Structure	11
Comparison of the Income Tax Structures	15
Tax Preferences	16
Business Deductions	16
Nonbusiness Deductions	23
Personal Allowances	25
Tax Credits and Surcharges	33
Rate Structure	34
Income Tax Rates	35
Tax Rate Levels	36
Progressivity of the Tax Rates	43
Tax Rates Dispersion across Income Levels	45
Summary and Conclusions	49

LIST OF TABLES AND FIGURES

<u>No.</u>	<u>Title</u>	<u>Page No.</u>
<u>Tables</u>		
1	COMPARISON OF THE LEVEL OF INCOME WITH THE RELATIVE WEIGHT OF TOTAL TAXES AND THE INDIVIDUAL INCOME TAX FOR SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS	3
2	DEGREE OF CENTRALIZATION OF TAX REVENUES AND EXPENDITURES BY THE CENTRAL GOVERNMENT FOR SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS	10
3	COMPARISON OF THE PERCENT DISTRIBUTION OF MAJOR TAX REVENUES FOR SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS	12
4	INCOME TAX DEDUCTIONS FOR SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS	17
5	INCOME TAX EXEMPTIONS AND TAX CREDITS FOR SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS	27
6	RANGE OF VARIATION OF THE INCOME TAX STATUTORY RATES FOR SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS	39
7	COMPARISON OF THE GNP PER CAPITA WITH THE DISTRIBUTION RANGE OF THE INCOME CLASSES	41
8	ELASTICITIES OF THE STATUTORY TAX RATES	44
<u>Figures</u>		
1	STATUTORY INCOME TAX RATES AT THE INCOME CLASS MID-POINT, ADJUSTED BY GNP PER CAPITA FOR BARBADOS, CHILE, ECUADOR, JAMAICA, PERU AND TRINIDAD & TOBAGO	37
2	STATUTORY INCOME TAX RATES AT THE INCOME CLASS MID-POINT ADJUSTED BY GNP PER CAPITA FOR BARBADOS, CHILE, JAMAICA, PERU AND TRINIDAD & TOBAGO	38
3	STATUTORY INCOME TAX RATES AT THE INCOME CLASS MID-POINT, ADJUSTED BY GNP PER CAPITA FOR BRAZIL, COLOMBIA, COSTA RICA, ECUADOR, MEXICO AND PARAGUAY	48

THE INCOME TAX IN SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS:
A CROSS NATIONAL COMPARISON WITH SPECIAL REFERENCE
TO THE CASE OF ECUADOR

Hernando R. Garzon

Executive Summary

The purpose of this study is to compare the income tax systems of Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Paraguay, Peru, Trinidad & Tobago and Venezuela among which the focus is directed to Ecuador.

The study begins with a cross national review of the relation between levels of income and taxation and the reliance on the income tax. It explores the idea that the degree of reliance on the income tax depends on income level and the degree to which governmental activities are centralized at the national level.

Public finance literature has shown that historically the size of the public sector, measured in terms of public expenditures, rises with the growth of per capita income; or equivalently, that there exists a direct relationship between the share of taxes in the economy (i.e. taxes as a percent of GNP) and the level of per capita income. Consequently, it may be expected that in the sample of fifteen Latin American and Caribbean nations a similar type of relation exists. Although there are significant exceptions, the nations considered here conform to the pattern described above. That is, those nations with the highest per capita income (GNP per capita), such as Venezuela, Barbados and Trinidad & Tobago are those which

also have the highest per capita taxes. At the other extreme, Honduras and Bolivia have the lowest levels of per capita income and per capita taxes. This suggests that independent of the ability to raise revenues from nontax sources, both the size of the public sector and the ability to increase the level of services provided to the average citizen can be expected to increase with per capita income. In this regard, Ecuador appears to be somewhat below what might be expected given its position in relation to other countries. Both the level of per capita taxes and taxes as a share of GNP are low relative to its level of income. That is, Ecuador does not rely heavily on taxes nor does it impose a particularly heavy tax burden on its population.

Turning to the individual income tax, a common expectation is that income taxes would be higher, account for a larger share of tax revenues and pose a larger burden, the higher the level of income. For all the sampled countries, however, the relation between the level of income and the income tax does not appear to be as strong as that between per capita income and per capita taxes.

There does appear to be at least one type of systematic difference among the countries. That is, on all the income tax indicators the Caribbean nations rank the highest. On the other hand, among the Central and South American countries there appears to be no apparent relation between incomes and the importance of and reliance on the individual income tax. This clearly indicates that there are factors in addition to the level of income which influence the choice of and dependence on the individual income tax and/or other revenue sources.

Nevertheless, it should be noted that in terms of income taxes as a percent of GNP, Ecuador more closely resembles the lower income countries. This suggests Ecuador has yet to take full advantage of the revenue potential of the income tax.

With regard to fiscal centralization, the expectation is that the greater assignment of public responsibilities to the central government, the higher will be the level of central government taxation. As the income tax is a central government tax, it may also be expected that the greater the degree of fiscal centralization the higher the income tax level.

The data seem to suggest that the share of income paid in taxes is directly related to the degree of centralization. The Caribbean nations have both the highest degrees of fiscal centralization and the highest income tax/GNP ratios. Mexico and Ecuador fall close to the average in terms of the degree of fiscal centralization as well as tax/GNP ratios. At the other extreme some nations with low total tax ratios such as Bolivia and Colombia show a relatively high degree of fiscal decentralization. Contrary to expectations, there does not appear to be much if any correspondence between the degree of centralization and income taxes as a percent of total tax revenues.

One of the implications of the above is that there may be considerable variation in tax structures and that for whatever reasons, the reliance on income taxes may be conditioned by peculiar circumstances of various countries which facilitate their use of other taxes.

Among the 15 countries considered here there appear to be four groups of nations. Those with low levels of per capita income or equivalently the less developed economies which rely heavily on taxes on international trade or have very weak income tax systems. The second group relies more on taxes on the domestic economy. This group includes most of the nations, but with a wide variation among them. The third group of nations includes those with higher per capita income levels and a greater degree of economic development. Tax structures of these countries rely heavily on corporate and individual income taxes. The fourth group includes the oil producing countries (Venezuela and Ecuador) in which the tax structure depends more heavily on the taxation of the oil industry.

Nevertheless, the cross country comparison seems to suggest that the nations' trend is to rely first on revenue sources which are politically "easy," such as natural resources or raw materials for exportation, and then on those which their level of economic development and administrative capacity allows them to cultivate. For instance, in Venezuela and Ecuador domestic taxes are much less important than the taxation of the oil industry. In Ecuador the tax on business income counts for a share of revenues which is three to four times greater than that in all other Latin American countries considered except Venezuela. In terms of reliance on business income taxes Ecuador and Venezuela are more like the highly centralized Caribbean nations than their Latin American neighbors.

The comparison of the income tax structures considers deductions, personal allowances and tax credits. The deductions refer to business and nonbusiness expenses. Ecuador, like a small number of the countries considered here, provides relatively few types of business deductions. As it is the more developed and higher income countries have more liberal business deductions--it would seem that this element of equity and taxation is a probable counterpart of the administrative effectiveness which accompanies economic improvement.

Similarly broader ranges of nonbusiness deductions seem to characterize the higher income countries while the types of allowable nonbusiness deductions are most limited in the lower income countries. Thus, it appears that while there are exceptions the variety of personal deductions incorporated in the personal income tax increases with income and level of development of an economy.

Among the countries considered here only a few--Brazil, Costa Rica and Guatemala--offer the option of a standard deduction in the income tax. Few countries have included savings and investment incentives in their income taxes. Only the higher income countries--Chile, Mexico and Jamaica--provide deductions for certain types of savings accounts. Ecuador is peculiar among the countries considered here in that it allows for a deduction of certain amounts invested in specific companies designated by economic development laws.

Most countries incorporate personal allowances in the form of exemptions rather than the more equitable tax credits. The exceptions are

Colombia, Costa Rica, Honduras, Jamaica and Venezuela, which provide credits for personal allowances. Ecuador and Guatemala differ from other countries considered in that dependent exemptions are conditional upon whether the spouses earn income above a certain level.

Among the countries considered here there is a wide variation in the range of rates applied in the personal income tax. Ecuador, like most of its Latin American neighbors, provides for a moderate range of tax rates (8-40 percent), while a number of countries do not apply positive tax rates until taxable income exceeds some minimum level. Ecuador, along with several other countries applies a positive tax rate at all levels of taxable income. In addition, Ecuador is the only country among the sampled nations which includes a surcharge in its system. It applies in only certain regions and is for the finance of public universities, public transit and rehabilitation centers.

As might be expected, a direct relationship between tax rates and tax yields appears to be characteristic of the countries considered here. Most of the countries that rank high in terms of the level of tax rates and tax yields can also be characterized as having a relatively narrow distribution of tax rates across income classes. Ecuador has both tax rates and tax yields that are below the sample average.

With regard to the progressivity of the statutory rates, the findings indicate that with the exception of Chile, the degree of progressivity in

rate structures decreases as one moves from the lower the higher income groups.

Higher rates are applied in those countries which have relatively high deduction and exemption levels (e.g., Barbados and Trinidad & Tobago) and which experience the resulting large reductions in their tax bases. The comparisons suggest a direct relationship between the number and level of deductions and allowances and the level of the tax rates. Alternatively, those nations with relatively high exemption levels and low tax rates can be expected to have very low tax yields (e.g., Paraguay and to a lesser extent, Ecuador).

Unlike most countries in Latin America and the Caribbean, Ecuador's system is indexed to mitigate inflationary increases in tax burdens. Thus, the tax system remains progressive rather than proportional.

1

THE INCOME TAX IN SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS:
A CROSS NATIONAL COMPARISON WITH SPECIAL REFERENCE
TO THE CASE OF ECUADOR

Introduction

The purpose of this study is to compare the income tax systems of 15 Latin American and Caribbean nations, among which the focus is directed to Ecuador. The main purpose is to identify relationships between various features of the different income tax systems and their tax yields. The question of why some countries rely more on the income tax than others is also explored and some hypotheses suggested. More importantly, conclusions are drawn from the overall analysis of the different income tax systems which should prove useful in any attempt to improve the operation of any income tax.

The study begins with a cross national review of the relation between income, taxation and reliance on the income tax and explores the idea that the degree of reliance on the income tax depends on income level and the degree to which governmental activities are centralized at the national level.

These considerations are followed by a comparison of the design and structure of income taxation in the fifteen countries. Of particular interest are differences in the definition of taxable bases, i.e., the nature and use of various deductions, allowances and exemptions and the structure of tax rates. The final section presents a review and conclusions.

Comparison of the Role of Other Taxes and the Income Tax

Economic Indicators and the Income Tax

This section presents a comparison of the income tax as it exists in Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Paraguay, Peru, Trinidad & Tobago and Venezuela. The first part of the analysis considers the relative importance of the income tax across nations in relation to the following standard economic indicators:

- The average income of the economies, measured in terms of Gross National Product (GNP) per capita.
- The ratios of total taxes to GNP and population; and
- The ratios of the individual income tax to GNP, population and central government taxes.

GNP Per Capita and Central Government Taxes.

Public finance

literature has shown that historically, the size of the public sector, measured in terms of public expenditures, rises with the growth of per capita income; or equivalently, that there exists a direct relationship between the share of taxes in the economy (taxes as a percent of GNP) and the per capita income level. Consequently, it may be expected that in the sample of fifteen Latin American and Caribbean nations a similar type of relation may also exist. This section tries to determine whether the sample nations follow this behavioral pattern.

Although there are significant exceptions, the nations considered here in Table 1 conform to the expected pattern, i.e., those nations with the highest per capita income (GNP per capita), such as Venezuela, Barbados and

TABLE 1

COMPARISON OF THE LEVEL OF INCOME WITH THE RELATIVE WEIGHT OF
TOTAL TAXES AND THE INDIVIDUAL INCOME TAX FOR SELECTED
LATIN AMERICAN AND CARIBBEAN NATIONS^a
(in US dollars)

Country	GNP Per Capita ^b	Total Taxes		Individual Income Tax		
		GNP (in percent)	Per Capita	Percent of Total Taxes	Percent of GNP	Per Capita
Venezuela	\$4,100	26.2	\$1,074.2	4.2	1.11	\$ 45.5
Barbados	3,930	27.3	1,072.9	10.6	2.91	114.4
Trinidad & Tobago	3,795	33.4	1,267.5	14.3	4.78	181.4
Mexico	2,240	17.2	385.3	12.1	2.08	46.6
Brazil	1,890	19.5	368.5	1.3	0.25	4.7
Chile	1,870	23.7	443.2	9.2	2.19	40.9
Ecuador	1,711	12.4	212.2	5.6	0.74	12.7
Paraguay	1,410	9.9	139.6	0.3	0.03	0.4
Colombia	1,410	9.9	139.6	15.9	1.57	22.1
Jamaica	1,398	31.9	445.9	17.3	5.51	77.0
Guatemala	1,120	8.7	97.4	2.5	0.22	2.5
Peru	1,040	17.1	177.8	2.1	0.36	3.7
Costa Rica	1,020	24.1	245.8	14.4	3.52	35.9
Honduras	670	13.9	93.1	7.4	1.03	6.9
Bolivia	510	4.7	23.9	8.4	0.40	2.0
Median	1,410	17.2	245.8	8.4	1.11	22.1
Average	1,874	18.7	412.5	8.4	1.78	39.8

^aPercentages were computed based on the available data of the most recent year. Most of them refer to year 1983 except for Guatemala, Paraguay and Peru, which correspond to 1982, Colombia, Honduras, and Jamaica to 1981, Trinidad & Tobago to 1979, and Venezuela to 1984.

^bMost of the GNP per capita data refer to year 1983, except for Trinidad & Tobago (1979) and Ecuador and Jamaica, which correspond to 1984. For those nations in which the data on taxes do not match with the same year of GNP per capita, it is assumed that the relative weight of taxes remains the same during those years.

SOURCE: The percentages and US dollars figures are computed by the author based on country data published by the International Monetary Fund in Government Finance Statistics Yearbook, 1985; The International Financial Statistics, January 1986; and The World Bank Atlas 1985.

Trinidad & Tobago, also have the highest per capita taxes. At the other extreme, Honduras and Bolivia have the lowest levels of both per capita income and per capita taxes.

On these grounds the data seem to suggest that among the countries considered here there exists a direct relationship between the level of income and taxes per capita. Deviations from the hypothesized pattern, however, are numerous. Although we do not explore the possibility, it is likely that these deviations may in part be attributed to differences between the countries in their use of nontax revenue sources, e.g., government enterprises, user fees, deficit financing and borrowing.¹

Among the countries considered here the Caribbean and Central America most frequently deviate from the hypothesized linear relation between income and taxes. The Caribbean nations are similar in that compared to the other nations they rely most heavily on taxes, i.e., they have the highest tax to income ratios. As these countries differ from the others in terms of history and government organization as well as location (insular), it might be expected that they would not fit well in the types of

¹It should be noted that the calculations for this analysis are generally based on the 1983 GNP per capita in US dollars as given in The World Bank Atlas 1985. However, for those countries for which these data were not available the 1983, GNP per capita in US dollars was computed by the author. These two sets of calculations are based on the procedures as described in The World Bank Atlas. The calculation of the exchange rate for the conversion of GNP to US dollars uses a three years arithmetic average (i.e., the year for which the country data corresponds plus the previous two years). However, it is not possible to exactly replicate the World Bank calculations as some of the figures on which they are based are not published. Therefore some deviations in the tax rates may be due to differences in the exchange rates and other adjustments used by the World Bank and this study. The exchange rates used in this report correspond to the annual average of the market exchange rate given by the IMF in International Financial Statistics.

comparison considered here. Reasons why the Central American countries (including Mexico) might not conform to the anticipated patterns are not so readily available, but some possibilities might include oil revenues in Mexico and political turmoil in Guatemala.

In contrast, among the South American countries there appears to be a close relation between levels of income and taxes. Of the two countries which deviate from the hypothesized relationship, only Peru would seem to be a significant exception. The other, Chile, differs from Brazil by just a few less dollars of per capita income, although it has a higher tax ratio. Given the vagaries of data and the problems of conversion to common units, the rankings of these two countries should be taken as tentative.

Also, given the similarities among the South American countries and the apparent correlation between per capita income and the total tax ratio, it is not surprising that Ecuador's rankings on these two measures are quite close, i.e., fourth highest per capita income and the fifth highest total tax ratio.

By way of contrast, the relation between per capita income and per capita taxes among the 15 countries appears to be somewhat stronger than that between income and the tax ratios. This suggests that the differences between the regions, i.e., Caribbean, Central America and Mexico, and South America, noted above, in some measure can be attributed to regional differences in the reliance on nontax sources for revenues.² To be sure,

²This can be seen as follows: with T,R and P representing taxes, total government revenues and population, per capita taxes can be identified as: $T/P = (T/R)(R/GNP)(GNP/P)$. This indicates that the relation between per capita taxes and per capita income and the total tax ratio $T/GNP = (T/R)(R/GNP)$ is dependent on the extent to which a government relies on taxes for its revenues, i.e., T/R.

the same holds true within regions. However, the greater correlation between per capita taxes and per capita incomes both within the three regions and across all countries suggests that independent of the ability to raise revenues from nontax sources, both the size of the public sector and the ability to increase the level of services provided to the average citizen can be expected to increase with per capita income.

In this regard Ecuador ranks about where it should among the South American countries, i.e., fourth in terms of both per capita income and per capita taxes. However, both the level of per capita taxes and the total tax ratio in Ecuador appear to be lower than might be expected given its position relative to the other countries in South America as well as the other regions. This suggests that to the extent that views about the role of government are similar among these nations, in Ecuador there is room for and the population could support a larger tax burden. Whether that would be desirable depends, of course, on the role that government is expected to play in the economy and its dependence on tax and nontax revenue sources. These issues are not to be resolved here. However, what these comparisons indicate is that given its level of income, Ecuador does not rely heavily on taxes nor does it impose a particularly heavy tax burden on its population.

Turning to the individual income tax, we presume the same type of relations as in the previous section. In fact, as income taxes are commonly perceived to be progressive, a common expectation is that income taxes would be higher, account for a larger share of tax revenues and pose a larger burden, the higher the level of income. Considering all the countries listed in Table 1, there appears to be no strong support for such an expectation.

There does appear to be at least one type of systematic difference among the countries. That is, on all three measures the Caribbean nations rank the highest. If there were some similar systematic difference between the Central and South American countries, then a case could be made for the importance of regional difference. As there are no such differences clearly apparent, then some other factors must be at work. One possible explanation for the difference between the Caribbean and the other countries perhaps lies in the nature of government they practice. This is a consideration which will be taken up in the next section. Still it is interesting to note that the importance of individual income tax in particular for these three countries appears to run exactly contrary to the supposed positive relation with income.

Among the Central and South American countries, whether considered regionally or together there appears to be no apparent relation between incomes and the importance of and reliance on the individual income tax. This clearly indicates that there are factors in addition to level of income which influence the choice of and dependence on the individual income tax and/or other revenue sources.

As to the burdens of income taxation, the data do not provide a clear picture. Certainly among the Central American and Caribbean countries there is no systematic relation between income level and per capita income tax. Among the South American countries, the suggested relation seems a bit more realistic. However, even among these countries it would be difficult to conclude that the data, as presented here, establish any kind of a relation between per capita income and per capita income taxes.

In one regard, the case of Ecuador is a bit peculiar. Among the eight South American countries, Ecuador ranks fourth in terms of per capita income, per capita income tax revenues and income tax revenues as a percent of GNP. This might be taken to imply that among its neighbors Ecuador typifies the hypothesized positive and increasing relation between income and income tax revenues. However, it should be noted that in terms of percent of GNP, Ecuador more closely resembles the lower income countries. This suggests Ecuador has yet to take full advantage of the revenue potential of the income tax.

Relation Between Tax Ratios and Fiscal Centralization

Since the data used in this analysis refer only to taxes levied by the central government, such as the income tax, there is the question of whether the importance of central government taxation is related to the degree of fiscal centralization in the sampled nations--and not only to the level of per capita income.

The expectation is that the greater the degree of fiscal centralization, i.e., the larger the assignment of public responsibilities to the central government, the higher the level of central government taxation. Also, since the income tax is a central government tax, it may be expected that the greater the degree of fiscal centralization the higher the income tax level. These possibilities are explored in terms of the tax ratios, i.e., total taxes and the individual income tax as a proportion of GNP and in per capita terms.

The data in Tables 1 and 2 indicate that the Caribbean nations (Barbados, Jamaica and Trinidad & Tobago) have both the the highest degrees of fiscal centralization and the highest tax ratios (total taxes/GNP). Also, nations such as Mexico and Ecuador fall close to the average in terms of the degree of fiscal centralization as well as tax ratios. At the other extreme some nations with low total tax ratios such as Bolivia and Colombia show a relatively high degree of fiscal decentralization. Therefore, the data seem to suggest that the degree of centralization is directly related to the ranking of the tax ratios.

With respect to the income tax ratio in particular, Brazil and Bolivia illustrate the case in which there is a direct relationship between a high degree of decentralization and a relatively low weight in the income tax. However, there are other nations (Venezuela, Paraguay) in which the rankings of the income tax ratio are not related to the degree of fiscal centralization. With the exception of the Caribbean countries, there does not appear to be much, if any, correspondence between the degree of centralization and income taxes as a percent of total tax revenues. In fact the data suggest that in both Central and South America the importance of the income tax among all tax is not related to the degree of either revenue or expenditure centralization. Given the diversity in the economies of these countries, perhaps it should not be a surprise that they differ so much in their relative use of the income tax. To be sure, some rely on their export sector to produce government revenues. Others depend on business and sales taxes while the property tax varies in importance (see below). Whatever the cause of these variations, it is the case that relative to its neighbors in South America, Ecuador is still ranked fourth

TABLE 2

DEGREE OF CENTRALIZATION OF TAX REVENUES AND EXPENDITURES
BY THE CENTRAL GOVERNMENT FOR SELECTED
LATIN AMERICAN AND CARIBBEAN NATIONS^a

Central Government Percentages of the Consolidated
for the General Government

<u>Nation's Ranking</u>	<u>Total Tax Revenues</u>	<u>Nation's Ranking</u>	<u>Total Expenditures and Lending Minus Repayments</u>
Barbados	100.0	Barbados	100.0
Jamaica	100.0	Jamaica	100.0
Trinidad & Tobago	99.9	Trinidad & Tobago	99.8
Venezuela	98.5	Venezuela	97.8
Costa Rica	97.7	Costa Rica	97.2
Paraguay	97.3	Guatemala	95.7
Chile	96.6	Paraguay	95.1
Honduras	96.2	Chile	94.9
Guatemala	94.5	Honduras	92.9
Mexico	83.6	Bolivia	89.3
Ecuador	83.5	Colombia	83.7
Colombia	81.8	Ecuador	81.6
Brazil	76.7	Mexico	81.4
Bolivia	74.2	Brazil	80.2

^aPeru is not included as data are not available. Horizontal comparisons with total expenditures are not allowed, since the first column does not refer to total revenues but to total taxes only.

SOURCE: Computed by the author based on IMF, Government Finance Statistics Yearbook Vol. IX (Washington D.C.: International Monetary Fund, 1985).

in centralization and percentage of tax revenues derived from the taxation of personal income.

Relation between the Income Tax and Central
Governments Tax Structure

One of the implications of the above is that there may be considerable variation in tax structures and that for whatever reasons, the reliance on income taxes may be conditioned by peculiar circumstances of various countries which facilitate their use of other taxes. The data indicate that most nations rely mainly on domestic taxes on goods and services (Table 3). There are some significant exceptions, however: Ecuador and Venezuela depend more heavily on taxes on the oil industry, Honduras relies more on taxes on international trade transactions, and Barbados, as well as Trinidad & Tobago derive most of their revenues from the corporate tax.

In general, there is a great deal of difference in their tax structures among the 15 countries. Nevertheless, four types of groups of nations can be identified. Those with low levels of per capita income, or equivalently the less developed economies, such as Honduras and Guatemala which rely heavily on taxes on international trade transactions, (Honduras) or those that also have very weak income tax systems, namely Guatemala. The second group relies more on taxes on the domestic economy, i.e., taxes on goods and services. Most sampled nations fall within this group; however, there remains wide variation among them. For instance, in Chile taxes on domestic goods and services account for the largest share of tax revenues (52.74 percent) of central government taxes. Alternatively, in Ecuador they are of relatively small importance (18 percent) and only Venezuela relies less on these taxes (5 percent).

TABLE 3
 COMPARISON OF THE PERCENT DISTRIBUTION OF MAJOR TAX REVENUES
 FOR SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS^d
 (in percent)

	<u>Barbados</u>	<u>Bolivia</u>	<u>Brazil</u>	<u>Chile</u>	<u>Colombia</u>	<u>Costa Rica</u>	<u>Ecuador</u>	<u>Guatemala</u>
TAX REVENUE	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Tax on Income, Profits, Capital Gain	33.48	15.21	20.57	14.57	27.20	17.52	61.04 ^b	13.90
Individual Income	10.64	8.44	1.30	5.73	15.90	14.42	5.61 ^b	2.50
Corporate	20.87	6.66	9.56	8.83	11.20	3.10	45.35 ^c	11.30
Other Unallocated Taxes on Income	1.97	0.10	9.71	---	0.10	---	10.08	0.10
Social Security Contributions	15.29	32.12	33.63	10.76	13.50	26.05	---	13.70
Employees	---	11.75	12.58	---	5.80	10.33	---	5.10
Employers	---	17.42	21.05	---	7.70	14.65	---	8.60
Self-Employed or Nonemployed	---	2.95	---	---	---	1.07	---	---
Taxes - Payroll or Manpower	---	---	5.60	---	5.20	---	---	---
Taxes on Property	4.89	3.78	0.06	5.22	0.40	0.54	1.74	1.00
Recurrent Taxes on Immovable Property	3.81	0.24	0.06	0.83	0.30	0.13	0.19	0.80
Recurrent Taxes on Net Wealth	---	---	---	---	---	---	---	---
Individual	---	---	---	---	---	---	---	---
Corporate	---	---	---	---	---	---	---	---
Other Taxes on Property	1.08	3.54	---	4.39	0.01	0.41	1.55	0.20
Domestic Taxes on Goods and Services	23.23	28.91	34.50	51.74	30.30	32.07	18.00	38.80
Taxes - International Trade, Transactions	16.95	18.31	5.63	12.54	20.90	23.15	18.84	17.50
Other Taxes	6.15	1.66	0.01	5.17	2.40	0.66	0.38	15.00

TABLE 3 (CONT.)

	<u>Honduras</u>	<u>Jamaica</u>	<u>Mexico</u>	<u>Paraguay</u>	<u>Peru</u>	<u>Trinidad & Tobago</u>	<u>Venezuela</u>
TAX REVENUE	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Tax on Income, Profits, Capital Gains	25.60	32.74	21.38	18.50	15.97	82.00	69.14
Individual Income	7.40	17.29	10.00	0.30 ^d	1.97	14.30	4.24
Corporate	18.00	15.45	11.24	17.40	13.89	66.60	64.90
Other Unallocated Taxes on Income	0.20	---	0.14	0.80	0.11	1.10	---
Social Security Contributions	---	4.35	10.57	15.30	---	2.00	3.74
Employees	---	---	---	---	---	---	---
Employers	---	---	---	---	---	---	---
Self-Employed or Nonemployed	---	---	---	---	---	---	---
Taxes - Payroll or Manpower	---	1.65	0.54	1.20	4.65	---	---
Taxes on Property	1.00	2.03	0.04	10.10	6.19	0.40	0.83
Recurrent Taxes on Immovable Property	---	1.82	---	3.90	---	0.20	---
Recurrent Taxes on Net Wealth	---	0.21	---	---	3.04	---	---
Individual	---	---	---	---	---	---	---
Corporate	---	0.21	---	---	3.04	---	---
Other Taxes on Property	1.00	---	0.04	6.20	3.15	0.20	0.83
Domestic Taxes on Goods and Services	27.40	49.30	60.82	25.30	46.68	6.00	5.06
Taxes - International Trade, Transactions	44.90	5.73	6.60	17.30	25.61	8.90	21.04
Other Taxes	1.00	4.19	0.04	12.20	0.89	0.60	0.19

^aPercentages were computed based on the available statistics for the most recent year. Most of them refer to the year 1983, except those for Venezuela and Chile which correspond to 1984. Data for Honduras, Jamaica and Colombia refer to 1981. Paraguay and Peru's percentages correspond to 1982 and Trinidad and Tobago to 1979.

^bThe computation of this figure is based on information supplied by the Ecuadorian Ministry of Finance.

^cThis figure includes revenues from oil industries (39.70 percent) and corporations (5.65 percent).

^dEstimated, based on the average for the period 1973-1979.

SOURCE: The percentages have been computed based on the figures published by the International Monetary Fund in Government Finance Statistics Yearbook, 1985.

The third group of nations are those which have higher per capita income levels and a greater degree of economic development. Countries such as Barbados and Trinidad & Tobago, whose tax structures rely more on the corporate and individual income tax, fall within this group.

The fourth category includes the oil producing countries such as Venezuela and Ecuador in which the tax structure depends more heavily on the taxation of the oil industry. The sales tax and particularly the individual income tax are much less developed in these nations.

The cross country comparison seems to suggest that the nation's trend is to rely first on revenue sources which are politically "easy", such as natural resources or raw materials for exportation, and those which their level of economic development and administrative capacity allows them to cultivate.

In general, tax structures which rely on the taxation of domestic goods and services may be expected to be rather regressive, while those based on taxes on individual income and profits are usually characterized as more progressive. On this account, despite the fact that Ecuador does not rely heavily on the personal income tax, it would appear to fare well in comparison to other countries. This follows from the fact that Ecuador taxes domestic goods and services relatively lightly while business income is a very important revenue source. In fact, in Ecuador the tax on business income accounts for a share of revenues (45 percent) which is three to four times greater than all other Latin American countries considered except Venezuela. In terms of reliance on business income taxes Ecuador and Venezuela are more like the highly centralized Caribbean nations than their Latin American neighbor. Oil, of course, is the element

common to these two countries, and to a large measure the revenues from business income tax are really derived from international trade.

Comparison of the Income Tax Structures

Among all nations there are similar procedures involved in the computation of tax liabilities. They begin with the listing of income from all taxable sources. Following this, the calculation of the tax liability begins with the computation of adjusted gross income (AGI), which includes some of the basic expenses incurred. These expenses are subtracted from gross income to obtain AGI, and are usually referred to as exclusions or basic deductions. The second step is the calculation of taxable income, which is the sum of itemized deductions (or in some cases a standard deduction) plus exemptions subtracted from AGI. Thirdly, the corresponding tax rates are applied to taxable income to determine tax liabilities. In addition, if there are any tax credits the last step consists of subtracting them from the gross amount of tax liabilities. In general, adjustments which reduce taxable income and/or tax liability are referred to as tax preferences.

In principle, the purpose for tax preferences is to provide for equal taxation of those who have equal taxable capacity. Thus, the cost of earning income and certain work related expenses, e.g., professional fees and business losses, are frequently excluded from taxation. On this account, adjustments for dependent and family size and certain necessary expenses, e.g., medical expenses, some mandatory contribution (e.g., social security) are often deemed necessary to achieve an equitable measure of taxable capacity (i.e., taxable income) and/or tax liability. A second

reason for tax preferences is to provide taxpayers with an incentive to increase their expenditures on certain activities which are deemed to be generally beneficial but which otherwise might not be undertaken at the desirable levels. Included in this category are activities and expenses such as charitable giving, home ownership and insurance premiums. Administrative feasibility or cost is another consideration relevant to the determination of what is and is not taxable. On this basis, elements of income such as unrealized capital gains and imputed rent of owner-occupied housing are generally not included in taxable income.

While the inclusion of tax preference is a general practice, those incorporated in any tax system is a policy matter determined by each country. The analysis of this section begins with a review of tax preferences. Following that intercountry differences in rate structure will be considered.

Tax Preferences

Tax preference items can be generally classified by type. There are those deductions and exemptions related to business activity, and those exemptions not related to business activity, i.e., personal exemptions, and tax credits. Each will be considered below.

Business Deductions. The principal reason underlying business deductions is essentially the same, i.e., not to tax those expenses incurred to earn their current level of income. From the information in Table 4, however, it is apparent that the treatment and types of business deductions vary among countries.

TABLE 4
INCOME TAX DEDUCTIONS FOR SELECTED LATIN AMERICAN AND CARIBBEAN NATIONS

<u>Business Deductions</u>	<u>Nonbusiness Deductions</u>
<u>Barbados</u>	
Expenses are generally deductible if they are wholly and exclusively laid out or expended for the purpose of the enterprise. An employee may only deduct unreimbursed expenditures incurred on traveling and entertaining in the performance of his duties.	Mortgage interest (up to US\$4,500 per year), national insurance contributions, life insurance premiums (up to US\$900), registered retirement or pension plan contributions, medical expenses (up to US\$75 each for individual and spouse, US\$37.50 for each dependent child), and charitable donations (up to 15 percent of assessable income).
<u>Bolivia</u>	
No business expenses may be deducted from income taxed under Category 5 of the tax law.	A resident may deduct social security taxes paid.
<u>Brazil</u>	
In general, business expenses are not deductible, with some exceptions, such as the cost of publications and/or technical material required for performing the work, uniforms and special clothing required for certain types of work, and travel expenses, not reimbursed by the employer, effectively connected and required for the maintenance of the source of income.	The following may be deducted, within certain limits: scholarships paid, donations and contributions to recognized charitable institutions, contributions to recognized pension funds, school fees, alimony and/or pension, rental expenses, mortgage interest, and extraordinary losses related to acts of God (not covered by insurance).
<u>Standard Deduction:</u> A flat standard deduction of 25 percent of salary income, limited in 1985 to US\$1,238, may be claimed in lieu of business and nonbusiness deductions.	The following may be deducted without any limitation: social security and union dues contributions, and medical, dental and hospital expenses.
<u>Chile</u>	
In general, all expenses incurred that are in the employer's interest, provided they are duly documented, are deductible. Among this are travel and lodging expenses and documented entertainment.	Besides social security contributions and a percentage of certain investments in shares and time deposits, no other nonbusiness deductions are allowed.
<u>Colombia</u>	
Employees are not entitled to deduct business related expenses from their compensation income.	A resident can deduct from his compensation income social security payments and mortgage interest not exceeding US\$6,146.

TABLE 4 (CONT.)

<u>Business Deductions</u>	<u>Nonbusiness Deductions</u>				
<u>Costa Rica</u>					
<p>An individual cannot deduct business expenses if his/her only source of income is for personal services regardless of whether he/she is reimbursed or not. However, self-employed individuals and those whose source of income is from commissions (sales), fees, etc., may deduct up to 25 percent of the gross income as a deduction without itemizing the expenses, or they may elect to itemize the expenses, which must be necessary to produce the gross income. Such deductions must be proven to the authorities upon request. Individuals may deduct directly from gross income the legal annual bonus (Christmas bonus), which should not exceed one-twelfth of earned salaries.</p>	<p>The following personal deductions are allowed: individual social security contributions and mandatory insurance payments (i.e., vehicle insurance for third party liability); court-ordered alimony and child support; the following percentages on payments made as long as the recipient's name and address are indicated:</p> <table style="margin-left: 40px;"> <tr> <td>Professional services</td> <td style="text-align: right;">50 percent</td> </tr> <tr> <td>Rent for housing</td> <td style="text-align: right;">30 percent</td> </tr> </table> <p>Certain other itemized personal expenses, which cannot exceed US\$937.50 or 20 percent of gross income before the presumed housing income, whichever is greater.</p>	Professional services	50 percent	Rent for housing	30 percent
Professional services	50 percent				
Rent for housing	30 percent				
<u>Ecuador</u>					
<p>Business deductions are generally not allowed against taxable income arising from employment.</p>	<p>Deductions (from employment income) allowed are: employee's portion of contributions paid to the Social Security system; payments made to the Social Security system and to savings and loan associations on mortgage loans for the acquisition of homes or rental payments up to US\$430 a year; contributions paid to labor or professional organizations; certain charitable contributions; amounts invested in certain companies classified under development laws as authorized.</p>				
<u>Guatemala</u>					
<p>In general, business related expenses are not deductible by individuals; however, reimbursements of such expenses received from an employer do not constitute taxable income.</p>	<p>A resident alien can only deduct the value of life, hospital and/or accident insurance premiums and payments made for services rendered to him or his dependents by professionals. In addition, any individual taxpayer can take a standard deduction equivalent to the lower of 20 percent of his gross income or US\$1,351.</p>				

TABLE 4 (CONT.)

Business Deductions	Nonbusiness Deductions
<u>Honduras</u>	
A nonresident alien has no business deductions.	A resident alien in business can deduct interest, certain state and local taxes, expenses incurred in producing income, certain unreimbursed employee expenses, and, subject to limitations, theft and casualty losses and charitable contributions.
<u>Jamaica</u>	
An individual can deduct all expenses that are incurred wholly and exclusively by him in earning his income, to the extent that they have not been reimbursed, e.g., business related travel, automobile and entertainment expenses.	An individual can deduct interest only to the extent that it was incurred wholly and exclusively in acquiring his income. Mortgage interest (maximum US\$30) is deductible where paid on local dwelling house that is the taxpayer's principal place of residence. Medical expenses (40 percent of annual medical expenses up to US\$20 per year), social security contributions, approved charitable donations, life insurance premiums (60 percent of annual premium up to \$US121), and savings in certain financial institutions where the capital is retained for five years are deductible.
<u>Mexico</u>	
Employees are allowed no business related deductions, although reimbursements of properly supported moving, traveling and entertainment expenses that are deductible to an employer do not represent taxable income to the employee.	A resident is allowed to deduct unreimbursed medical, dental or funeral expenses for himself and dependents as well as certain charitable donations, and in 1984 and subsequent years, deposits in special interest-bearing savings accounts. For 1985, the maximum deductible deposit is an amount equal to twice annual minimum wages in the Federal District (Mexico City), or around US\$3,600. Withdrawals from these savings accounts become taxable income. There are no standard deductions (except that an individual may deduct 50 percent of rental income instead of actual expenses and depreciation of the property).

TABLE 4 (CONT.)

Business Deductions	Nonbusiness Deductions
<u>Paraguay</u>	
When the executive's remuneration paid by the entity is treated as taxable to the individual, personal business or nonbusiness expenses are not allowed as deductions.	The same criteria as under business deductions apply in this case.
<u>Peru</u>	
Peruvian legislation allows companies to pay directly or to reimburse business expenses incurred by executives. Consequently, deductions for moving, traveling, automobile and other expenses are not permitted to individuals when these expenses are connected with their activities as employees of a local entity.	Individuals with income other than remunerations are entitled to certain deductions in accordance with the type of income obtained. Those living in their own houses must declare a deemed rental from which they can deduct maintenance expenses and mortgage interest (subject to limitations). No deduction is permitted from interest and dividend income, or other income generated by capital invested.
<u>Trinidad & Tobago</u>	
An individual is not entitled to any blanket or standard deductions. He may claim a deduction for expenses wholly, exclusively and necessarily incurred in the course of his employment. Where the individual is carrying on a trade, business, profession, or vocation, the expenses wholly and exclusively incurred in the production of the income are deductible, as are capital allowances.	Payments made under deed of covenant to individuals are deductible, but those covenants must be for a period exceeding six years. The amount deductible is restricted to 10 percent of the taxpayer's income before personal allowances. Medical expenses are allowed up to a maximum of US\$333.33. Insurance premiums are allowed up to 40 percent of premiums paid, but policies must be taken out in Trinidad & Tobago or another Commonwealth country. Seventy percent of the Social Security contributions are deductible. Residents and citizens of Trinidad & Tobago are allowed to claim mortgage interest paid on their owner-occupied property during a calendar year.

TABLE 4 (CONT.)

Business Deductions	Nonbusiness Deductions
<u>Venezuela</u>	
<p>Individuals who are not employees can deduct costs and expenses allowed by the law, following corporation rules. Taxable income does not include travel expenses reimbursement and limited representation expenses. Employee's income does not admit business deductions.</p>	<p>In determining the net taxable income, Venezuelan residents can deduct some expenses. Deductions subject to limitations are mainly: Venezuelan Social Security tax; interest on loans to purchase or enlarge the principal residence of the taxpayer or for rental for the principal residence; payments to educational institutions in Venezuela for the education of children under 24 years of age; local life insurance, surgical, hospitalization, automobile and civil responsibility insurance premiums; and 25 percent of fees for services rendered by professionals other than medical or dental. Charitable contributions are deductible, but if their amount is US\$784 or more, prior approval from the National Executive is necessary. Deductions for dental, medical and hospital payments are tax deductible without limitations.</p>

SOURCE: Price Waterhouse, Individual Taxes: A Worldwide Summary (New York: Price Waterhouse, 1985 edition).

Four types of approaches can be distinguished in the sample countries. First, business deductions can be characterized as very restricted, where usually the tax legislation itemizes which expenses are allowed, such as in Brazil and Barbados. A second approach is based explicitly on the type of economic role of the individual. In this case the emphasis is placed on whether the individual is an employer or an employee. Employers are allowed business deductions if these are connected directly with their economic activity such as in Mexico, Venezuela and Paraguay. On the other hand, employees are in general excluded from any possible business deductions, such as in Bolivia, Ecuador and Guatemala. Another approach in some countries is to determine first whether the employee's expense was reimbursed by the employer or paid directly by the company. In those cases in which expenses are neither reimbursed nor paid by the company, the employee is then allowed the business deduction. Such is the case in Jamaica. It should be noted that this third approach takes into account the type of expenditure, the type of economic role of the individual and whether or not the expenditure has been reimbursed. A fourth and last approach found in the sample offers the option of deducting a fixed proportion of gross income, which usually eliminates the need to itemize expenses. Such is the case for the self-employed in Costa Rica, who can deduct up to 25 percent of their gross income. Other practices which can fall within any of the above four categories are: the nonrecognition of business deductions to nonresidents (e.g., Honduras) or to individuals whose income comes solely from personal services (e.g., Costa Rica).

It appears that Ecuador, like a number of other countries, provides for relatively few types of business deductions. Given that matters of equity in taxation are so frequently voiced as a concern in Latin America, it would seem reasonable to suppose that administrative feasibility considerations are the determining factor. That the higher income countries in the Caribbean and South America as well as the more developed of the Central American countries have more liberal business deductions seems to suggest that the element of equity in taxation are a probable counterpart of the administrative effectiveness which accompanies economic improvement.

Nonbusiness Deductions. There exists a much wider variety of nonbusiness than business deductions across the sampled nations. There are multiple criteria for these deductions. It may be because certain expenses are mandated by law, such as social security contributions, the most common deduction; or because the expenditures are vital to the individual, such as housing (e.g., mortgage interest, which is the second most frequent deduction); or because the expense is considered socially desirable, such as charitable contributions, etc. The above three types of deductions, existing in one form or another (except in Bolivia and Paraguay) are the typical ones. Medical expenses are less frequent (e.g., Barbados, Colombia, Jamaica, Peru, and Trinidad & Tobago) and in some cases also include dental and hospital expenses (Brazil and Mexico). Deductions for education are less common (Colombia, Brazil, Peru and Venezuela). The least frequent deductions are life and car insurance (the latter where mandatory, as in Venezuela) and alimony and/or pension contributions (Brazil). It is worth noting that a few countries (Chile, Mexico, and

Jamaica) provide deductions for certain types of savings accounts and/or the interest they generate. This is a somewhat unusual practice designed, no doubt, to encourage certain types of saving. A similar rationale probably underlies Ecuador's peculiar treatment of certain types of investments, i.e., a deduction of certain amounts invested in specific companies designated by economic development laws. While not common, attempts to use deductions to encourage savings and presumably increase the amount available for investments do exist. However, the use of an income tax deduction to channel saving and increase investments is nowhere undertaken with the same degree of specification (i.e., designated companies) as in Ecuador.

Only a few countries offer the option of a standard deduction; these are Brazil, Costa Rica and Guatemala. In general the list of deductions varies widely from country to country. On the one hand, broader ranges of nonbusiness deductions seem to characterize the higher income countries like Jamaica, Brazil and Mexico. However, Costa Rica and Ecuador, which are moderate income countries, fall into this group. On the other hand the types of nonbusiness deductions are most limited in the lower income countries (Bolivia, Honduras, Peru, Guatemala and Paraguay), although Chile, one of the richer, belongs to this group. Thus it appears that while there are exceptions, the variety of personal deductions incorporated in the personal income tax increases with income and level of development of an economy. This may be due in part to the greater ability to administer and afford the cost of monitoring a more complex system that accompanies higher incomes. Alternatively it may be that higher income countries have the wherewithal to absorb the revenue loss attendant to the use of deductions to achieve the more equitable treatment of taxpayers.

In general the nonbusiness deductions are defined either as absolute amounts, as a proportion of gross income, or as a combination of a fixed proportion of gross income with a maximum limit. The less common practice is the option of a standard deduction.

The implications of the above practices in terms of equity, efficiency, administrative simplicity, and tax yields are fairly similar to those considered under business deductions above. However, given the broader nature of the former, it is important to note that the effects of nonbusiness deductions on the erosion of the tax base can potentially be of greater magnitude than those of business deductions.

Personal Allowances

The general purpose to be served by personal allowances is that of equity; a fairer measure of taxable capacity is obtained by making allowance for the cost of caring for families and other dependents. The amounts involved and the manner in which this is achieved varies among the countries considered here. In most countries personal allowances are subtracted from AGI in the calculation of taxable income. In contrast to this treatment of allowances as exemptions, personal allowances can be given as tax credits and are thus subtracted from tax liabilities.

This difference in treatment is important. The use of a tax credit dictates that the tax savings (reductions in tax) liability associated with any personal allowance is the same for all taxpayers regardless of their level of income.

Alternatively when the tax is imposed at progressive rates as it is in all the countries considered here, such equal treatment is not the case when personal allowances take the form of exemptions. In this case, the

reduction in taxable income is the same for all who claim any particular personal allowance but their tax savings depend on the rate bracket in which the taxpayers fall. Equal reduction in taxable incomes generate larger (smaller) reductions in tax liabilities for those subjected to higher (lower) tax rates. Thus the tax saving associated with exemptions are greater (smaller) for those whose higher (lower) incomes place them in the higher (lower) rate brackets. Although it can be argued that the wealthy incur a greater cost in supporting dependents, the general conception is that dependent support imposes no less of a burden on the poor. Thus in terms of the burden of the tax, tax credits rather than exemptions are the equitable alternative.

Nevertheless, most countries incorporate personal allowances in the form of exemptions rather than credits. The exceptions are Colombia, Costa Rica, Honduras, Jamaica and Venezuela, which provide credits for personal allowances. In Costa Rica the taxpayer has a choice of taking a standard deduction of fixed amount in place of credits for personal allowances and nonbusiness deductions (see Table 5).

Among the countries which apply personal exemptions instead of "tax credits," there are also differences in the relative treatment of income earner/taxpayers and their dependents. In most countries (Barbados, Ecuador, Guatemala, Peru, Trinidad & Tobago and Venezuela) fixed absolute amounts are provided for the taxpayer allowance. In others, such as Bolivia, a fixed proportion (25 percent) is applied on gross income, with a maximum limit. Paraguay has a minimum nontaxable income and a fixed personal exemption, the sum of which must not exceed a maximum limit. The taxpayer exemption in Barbados is greater for the elderly. In Mexico the

TABLE 5 (CONT.)

<u>Exemptions (Personal Allowances)</u>	<u>Tax Credits</u>														
<u>Colombia</u>															
<p>Personal allowances are given in the form of tax credits. A resident alien is entitled to deduct from his income tax the following personal allowances:</p> <table> <tr> <td>Personal allowance</td> <td style="text-align: right;">US\$43</td> </tr> <tr> <td>Spouse allowance</td> <td style="text-align: right;">79</td> </tr> <tr> <td>Dependents (excluding spouse)</td> <td style="text-align: right;">22 each</td> </tr> <tr> <td>Rent allowance</td> <td style="text-align: right;">20 percent up to US\$1,229 per annum, 5 percent of any excess</td> </tr> <tr> <td>Special allowance</td> <td style="text-align: right;">US\$36 (if no deduction is claimed for rent, medical or school fees)</td> </tr> <tr> <td>Allowance for income tax withheld by employer</td> <td style="text-align: right;">25 percent up to US\$474 per annum, 10 percent of any excess</td> </tr> <tr> <td>School and medical fees</td> <td style="text-align: right;">10 percent of such fees paid</td> </tr> </table>	Personal allowance	US\$43	Spouse allowance	79	Dependents (excluding spouse)	22 each	Rent allowance	20 percent up to US\$1,229 per annum, 5 percent of any excess	Special allowance	US\$36 (if no deduction is claimed for rent, medical or school fees)	Allowance for income tax withheld by employer	25 percent up to US\$474 per annum, 10 percent of any excess	School and medical fees	10 percent of such fees paid	<p>A resident alien is not entitled to a foreign tax credit. Tax credits are applied on income tax withholding on salaries.</p>
Personal allowance	US\$43														
Spouse allowance	79														
Dependents (excluding spouse)	22 each														
Rent allowance	20 percent up to US\$1,229 per annum, 5 percent of any excess														
Special allowance	US\$36 (if no deduction is claimed for rent, medical or school fees)														
Allowance for income tax withheld by employer	25 percent up to US\$474 per annum, 10 percent of any excess														
School and medical fees	10 percent of such fees paid														
<u>Costa Rica</u>															
<p>Individuals are permitted the following tax credits:</p> <table> <tr> <td>Taxpayer</td> <td style="text-align: right;">US\$166</td> </tr> <tr> <td>Spouse</td> <td style="text-align: right;">94</td> </tr> <tr> <td>Child (each)</td> <td style="text-align: right;">73</td> </tr> <tr> <td>Dependent (each)</td> <td style="text-align: right;">21</td> </tr> </table> <p>The child deduction is permissible only if the child is a minor, unable to work or a university student under 30 years of age. The deduction for dependents is permitted as long as he/she is not able to work and is family related, with a maximum of three dependents.</p> <p>Notwithstanding the above mentioned items, individuals may deduct, instead of the itemized, nonbusiness expenses and personal deductions, a standard deduction of US\$3,125 without need of proof.</p>	Taxpayer	US\$166	Spouse	94	Child (each)	73	Dependent (each)	21	<p>In accordance with Costa Rican legislation, there are no tax credits allowed to individuals for taxes paid to foreign governments. Personal allowances take the form of tax credits (see exemptions). Tax credits are applied on income tax withheld at source.</p>						
Taxpayer	US\$166														
Spouse	94														
Child (each)	73														
Dependent (each)	21														

TABLE 5 (CONT.)

Exemptions (Personal Allowances)	Tax Credits
<u>Ecuador</u>	
<p>At present, taxpayers (Ecuadorian or foreign residents) get a US\$430 personal deduction for themselves and for their spouses (provided the spouse does not have employment income). A deduction of US\$96 is allowed for each dependent (provided they have no income of their own and are supported by the taxpayer). A special deduction of US\$1,196 is allowed to taxpayers for each dependent who is physically or mentally incapacitated.</p>	<p>The law provides for tax relief within the following rules:</p> <ol style="list-style-type: none"> 1. Taxes withheld at source on dividends and interest can be taken as tax credits. 2. Credit is available in respect of income taxes paid to another country on income from abroad that is considered Ecuadorian source income. The credit is limited to an amount equal to the Ecuadorian tax due on such income, if tax paid abroad exceeds it.
<u>Guatemala</u>	
<p>Resident aliens get a US\$810 personal deduction (exemption) for themselves if they do not have dependents (US\$1,486 if they do have dependents), US\$946 for their spouse (if spouse does not have personal income in excess of US\$946) and US\$811 for each of their dependents.</p>	<p>Resident aliens cannot take income taxes paid to foreign countries or governmental units as a credit against their tax liability in Guatemala. Income tax withholding on salaries are taken as tax credits.</p>
<u>Honduras</u>	
<p>Only resident aliens get a US\$75 personal credit against income tax, US\$25 for their spouse, and US\$15 for each of their dependents.</p>	<p>Income taxes paid to foreign countries can be deducted from taxable income of resident aliens. Personal allowances take the form of tax credits. Also, income tax withholdings on payroll income are taken as tax credits.</p>
<u>Jamaica</u>	
<p>Resident individuals get a credit for personal allowances against the tax payable. The amount of the credit is US\$12 for an individual, US\$149 for a married man, US\$20 for each child, and US\$24 for a child at University.</p>	<p>Foreign tax paid on income that is not taxed in Jamaica is not available as a credit against the Jamaican tax liability. Personal allowances take the form of tax credits. Also, income tax withholdings on salaries are taken as tax credits.</p>
<u>Mexico</u>	
<p>Each resident is also allowed to deduct an amount equal to the annual minimum wage in the zone where he resides, plus 30 days' minimum wage if he receives a Christmas bonus from his employer (a total deduction of around US\$1,750 in the Federal District).</p>	<p>A resident may deduct from his Mexican tax payable, subject to limitations, any foreign income tax paid on foreign source income. Income tax withholdings on salaries and interest are taken as tax credits.</p>

TABLE 5 (CONT.)

<u>Exemptions (Personal Allowances)</u>	<u>Tax Credits</u>	
<u>Paraguay</u>		
In the event of an executive being personally taxed on his remuneration, a minimum nontaxable amount and several allowances for dependents are deductible. These deductions are as follows:	None available.	
Nontaxable minimum	US\$584	
Dependents		
Spouse	292	
For each parent	115	
For each single daughter or minor son	115	
For each grandchild or great-grandchild	115	
For each single or widowed sister	115	
For any person to whom there is a legal obligation to pay support	7	
The total amount of nontaxable minimum and allowances for dependents cannot exceed US\$1,692		
<u>Peru</u>		
Individuals working in Peru are entitled to deduct US\$3,092 for themselves and US\$773 for their spouse and for each dependent, all residing in Peru. Medical assistance expenses, educational expenses and the tax on remunerations paid for the same fiscal year are also deductible, the former two subject to limitations.	Taxpayers can take income taxes paid to foreign countries or within Peru as a credit against their total tax liability. (Foreign taxes are subject to limitations.)	
<u>Trinidad & Tobago</u>		
Personal allowance	US\$1,041	Credit is granted to residents for taxes paid in foreign countries, and to nonresidents for doubly taxed income, depending on the basis set out in existing double tax treaties for the particular type of income. Income tax deducted at source on all salaried income under the pay-as-you-earn system (PAYE) is taken as tax credit
Spouse allowance	750	
Alimony (subject to payment of withholding tax)	Full amount	
Child allowance:		
1. Child residing at home	291	
2. Child over ten years of age residing away from home	625	
3. Child at university	1,583	
Education and book allowance	US\$41 per child 1 and 2 above	

TABLE 5 (CONT.)

<u>Exemptions (Personal Allowances)</u>	<u>Tax Credits</u>
<u>Trinidad & Tobago (Cont.)</u>	
Housekeeper allowance	250
Dependent relative	166
Approved pension fund/national insurance	Full amount/70 percent
Life insurance premiums	40 percent of premium
Medical expenses	333
Health surcharge	100 percent

Venezuela

Residents get US\$25 personal deduction (exemption) for themselves and US\$14 for their spouse and each child, which take the form of tax credits.

There are no foreign tax credits. Personal allowances take the form of tax credits. Income tax withheld at source on salaries, professional fees, royalties and other payments, is taken as tax credit.

SOURCE: Price Waterhouse, Individual Taxes: A Worldwide Summary (New York: Price Waterhouse, 1985 Edition).

value of the exemption is given by the sum of the minimum salary, plus the value of the Christmas bonus, and in Guatemala the value of the taxpayer exemption depends on whether or not they have any dependents (see Table 5).

Dependent exemptions refer mainly to allowances for the spouse and the children of the taxpayer. Fixed amounts for dependent exemptions are the common feature. However, in some countries (e.g., Ecuador and Guatemala) exemptions for spouses are made conditional upon whether the spouse earns income above a minimum level.

Alternatively, most countries define a fixed amount per child dependent. However, the Caribbean nations, Trinidad & Tobago, Jamaica, and Barbados provide differential allowances, depending on the age, university student status, and the location of the place where the child receives her education. In Trinidad & Tobago an exemption is allowed for student textbooks. A description of the different exemptions for each country can be found in Table 5.

In several countries exemptions are allowed to taxpayers with dependents in addition to spouses and children. The countries which apply this kind of exemption are Barbados, Brazil, Costa Rica, Ecuador, Guatemala, Honduras and Paraguay. However, in some of the above countries these exemptions are made conditional on the inability of the dependent to work, such as the case in Ecuador; or they are limited to a maximum number of dependents, as in Costa Rica; or restricted to relatives only, such as in Paraguay.

It is important to note that in Paraguay, in order to compute taxable income, in addition to the personal exemptions there is also a nontaxable minimum income of ₡228,000 (US\$585), which must be added to the allowances;

the sum must not to exceed ₡660,000 (US\$1,692). This type of practice must evidently erode Paraguay's tax base.

Trinidad & Tobago can be characterized as one of the nations with the greatest number of personal exemptions. In this nation the exemptions not only cover textbooks (noted above) and some items treated as deductions in other countries (insurance and medical expenses) but under "other exemptions" for instance, a special allowance is also granted for a housekeeper. A list of "other personal exemptions" for each country is included in Table 5.

Tax Credits and Surcharges

Tax credits and surcharges are not as prevalent as deductions and exemptions. Among the countries considered here, tax credits (where they are used) serve one of three purposes. The first and most prevalent is to avoid double taxation, which is commonly practiced worldwide. The second is related simply to computation ease. That is, some countries combine a graduated proportional rate structures with credits simply because taxpayers can more easily calculate their tax liability. These are not true tax credits and will not be considered here. The third use of tax credit is as an alternative to deductions and/or exemptions in the treatment of tax preference items. As has been indicated above, the interest of equity is more clearly served by the use of credits rather than deductions and exemptions. Few countries provide tax credits in place of what are most often considered deductions and exemptions. In Chile the principal credit is the same for the taxpayer and his dependents. In the others (Colombia, Costa Rica, Honduras and Jamaica) credits of different amounts are provided for the taxpayer, spouse and other dependents. In this

regard these countries are similar to those which provide for personal allowances in the form of personal exemptions. Colombia has the broadest form of tax credits in that a special provision including residential rents and medical and school fees as exemptions. As noted in Costa Rica, credits for personal allowance may be taken as an alternative to itemizing nonbusiness deductions and personal allowances.

In regard to taxes, credits are granted by some countries such as Brazil, Ecuador, and Honduras to account for income taxes paid to foreign countries. They are also granted in Mexico and Peru for the same purposes as above, but within certain limits, and in Jamaica and Trinidad & Tobago under specific international agreements. Bolivia, Colombia, Costa Rica, Chile, Guatemala, Paraguay and Venezuela do not allow this practice. With regard to domestic taxes, credits are mainly used to account for personal income tax withholdings (Table 5).

The use of surcharges does not appear to be a common practice among the fifteen countries considered here. Indeed, only Ecuador includes surcharges in its tax system. As is often the case with surcharges, they are imposed for specific purposes. In Ecuador, they are used to finance public universities and public transit and rehabilitation centers. As noted in regard to the use of surcharges, Ecuador appears to pursue a policy which is uncommon among the countries considered here.

Rate Structure

The rate structure of the income tax as applied by the countries considered here differ greatly in many important respects (the actual rate structures are presented in Table A-1). For the purpose of illustration,

in Brazil tax rates vary over a wide range (between 5 and 60 percent), a narrow range in Costa Rica (39 to 50 percent) while in Ecuador as in most of the Latin American countries the range is moderate (8 to 40 percent). Also, Ecuador is the only country in the sample which applies a set of proportional tax rates in addition to the current marginal rates (Table A-1).

Income Tax Rates

In some countries (Barbados, Brazil, Chile, Colombia, Costa Rica, Guatemala, Peru and Venezuela) the lowest taxable income class is assigned a zero statutory tax rate. In the rest (Ecuador, Honduras, Jamaica, Mexico, Paraguay, and Trinidad & Tobago) a positive rate is assigned at all taxable income levels. In addition, the range of variation in the levels of income covered by an income class (measured in US dollars) is also very broad (Table A-1). They range from countries with income class boundaries between a minimum of \$2.31 to a maximum of \$69.58 and nations with a lower boundary of \$15,686 to a maximum of \$627,451, as in Peru and Venezuela respectively.

As can be deduced from the above, the comparison of tax rate structures across countries is far from straightforward, as the tax rates not only refer to different income class ranges, but also to economies of different income levels. However, if similar levels of efficiency (or inefficiency) in the administration of the tax systems were to be assumed, a standardization for income differences would allow a comparison of the tax rate structures in terms of their level, the degree of progressivity, and an approximation of where different income groups fall within the range of rate brackets. These matters will be discussed below.

Tax Rate Levels

With regard to the first issue, levels of tax rates can be compared only after a standardization of the income classes. The purpose of the adjustment is to take into account the fact that the values of national currencies differ between countries and also that the level of income and its distribution varies across nations. Therefore, the standardization of income classes transforms them into one single currency (US dollars) and computes them as a proportion of the average income (GNP per capita) in the economy.

Historically, it has been generally perceived that, other things the same, higher tax rates generate larger revenues. Figure 1 and Table 6 show that the countries with the highest tax rates are Trinidad & Tobago (70 percent), Barbados (60 percent), Brazil (60 percent), Jamaica (57 percent), and Chile (56 percent). Alternatively, the nations with the highest income tax yields, as a proportion of GNP, (Table 1) are Trinidad & Tobago (4.78 percent), Jamaica (5.51 percent), Costa Rica (3.52 percent), Barbados (2.91 percent) and Chile (2.19 percent). Thus, four of the five countries with the highest rates have the highest yields. This suggests the accuracy of the historic perceptions. Some exceptions, however, are worth noting. Brazil, with relatively high tax rates, ranks thirteenth in tax yields. Costa Rica ranks third in yields, while its maximum tax rate (50 percent) can be considered a medium rate. Explanations for this are not difficult to find. In the case of Brazil (Figures 1 and 2) the tax rate structure spans a range of income classes much broader than in any other of the above countries. Therefore, it might be expected that most taxpayers are covered by the medium and lower rates of the tax structure (i.e., the median

FIGURE 1

STATUTORY TAX RATES AT THE INCOME CLASS MIDPOINT,
ADJUSTED BY GNP PER CAPITA FOR BARBADOS, CHILE,
ECUADOR, JAMAICA, PERU AND TRINIDAD & TOBAGO

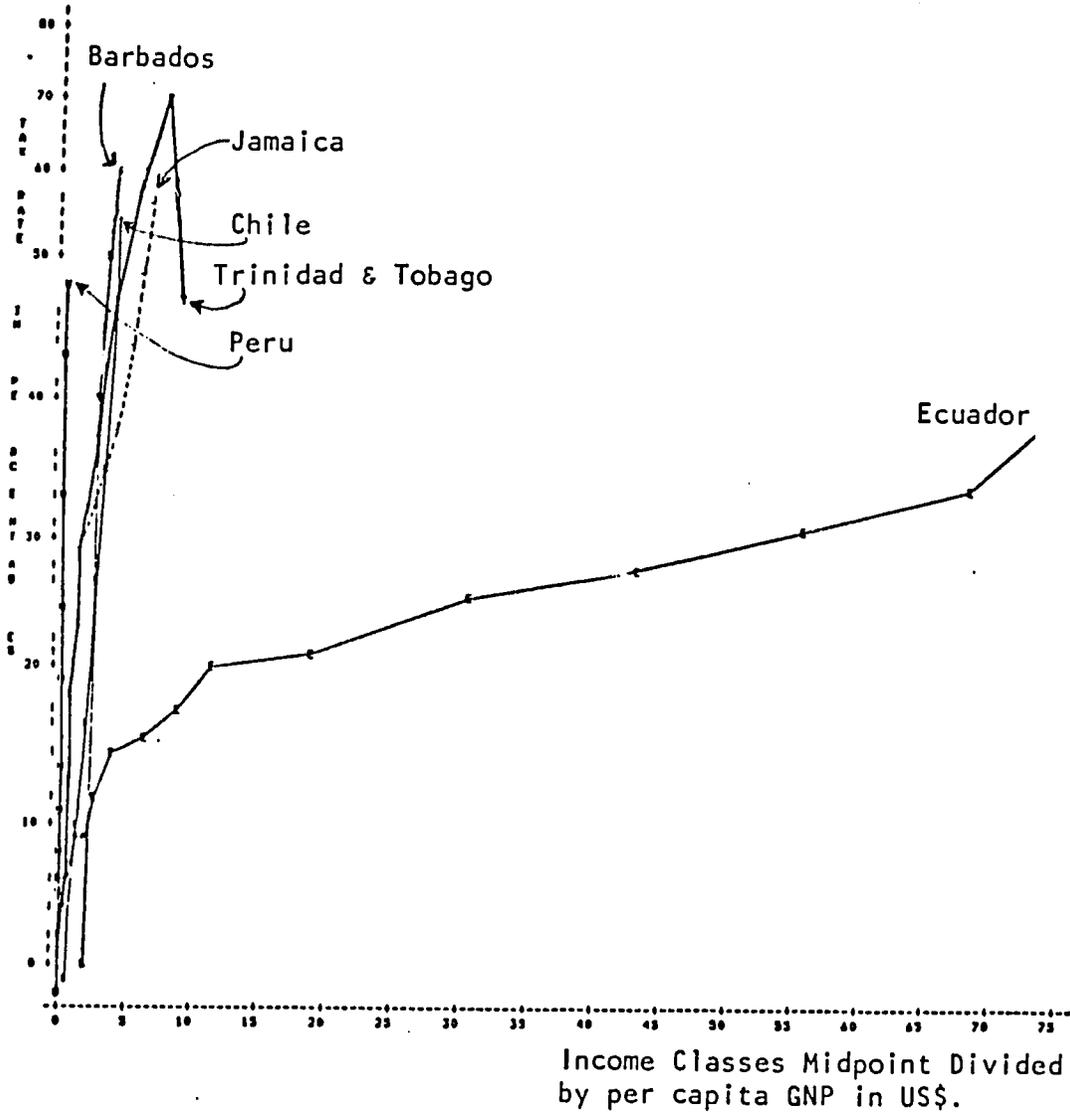


FIGURE 2

STATUTORY TAX RATES AT THE INCOME CLASS MIDPOINT
 ADJUSTED BY GNP PER CAPITA FOR BARBADOS, CHILE,
 JAMAICA, PERU AND TRINIDAD & TOBAGO

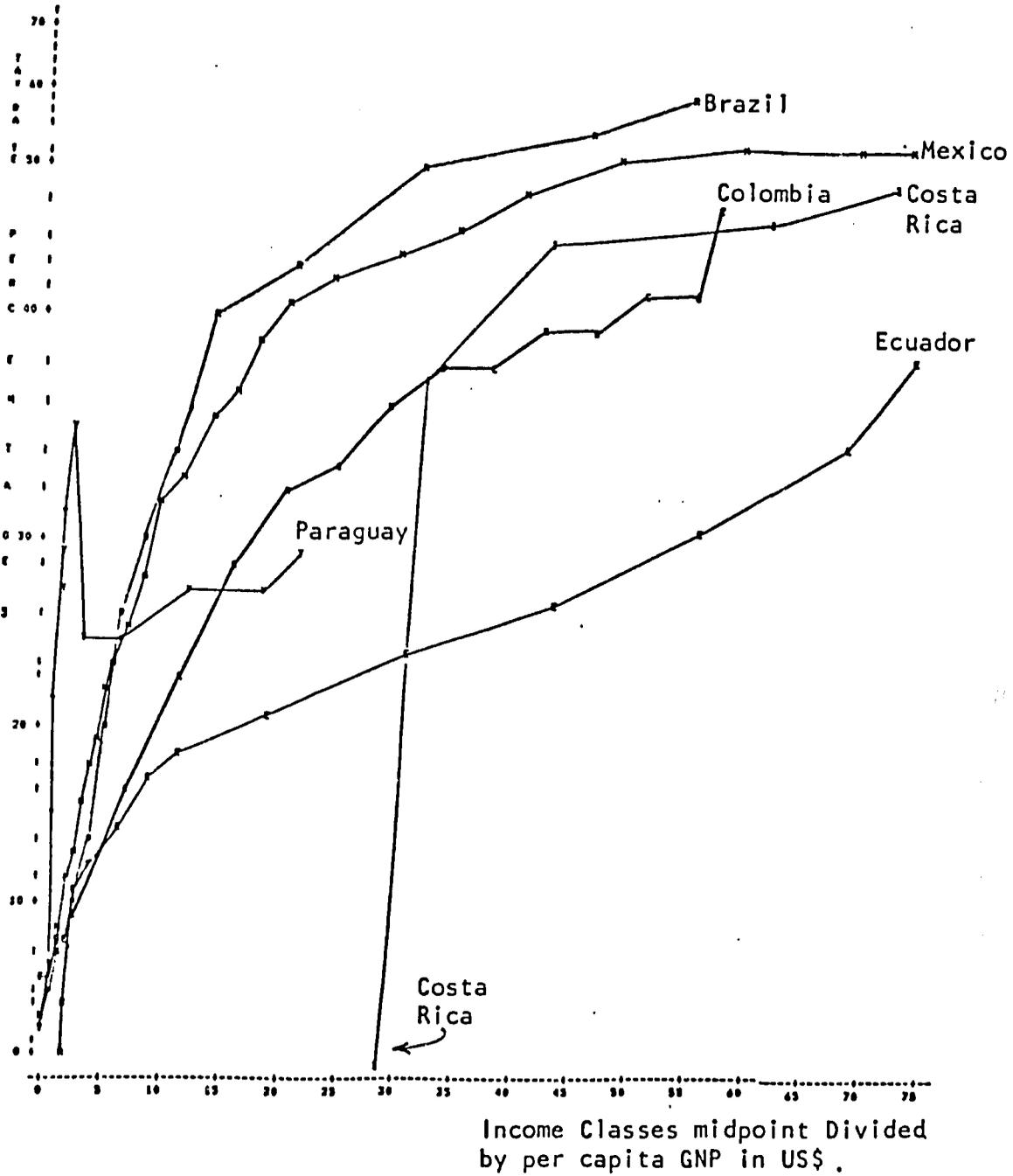


FIGURE 3

STATUTORY TAX RATES AT THE INCOME CLASS MIDPOINT,
ADJUSTED BY GNP PER CAPITA FOR BRAZIL, COLOMBIA,
COSTA RICA, ECUADOR, MEXICO AND PARAGUAY

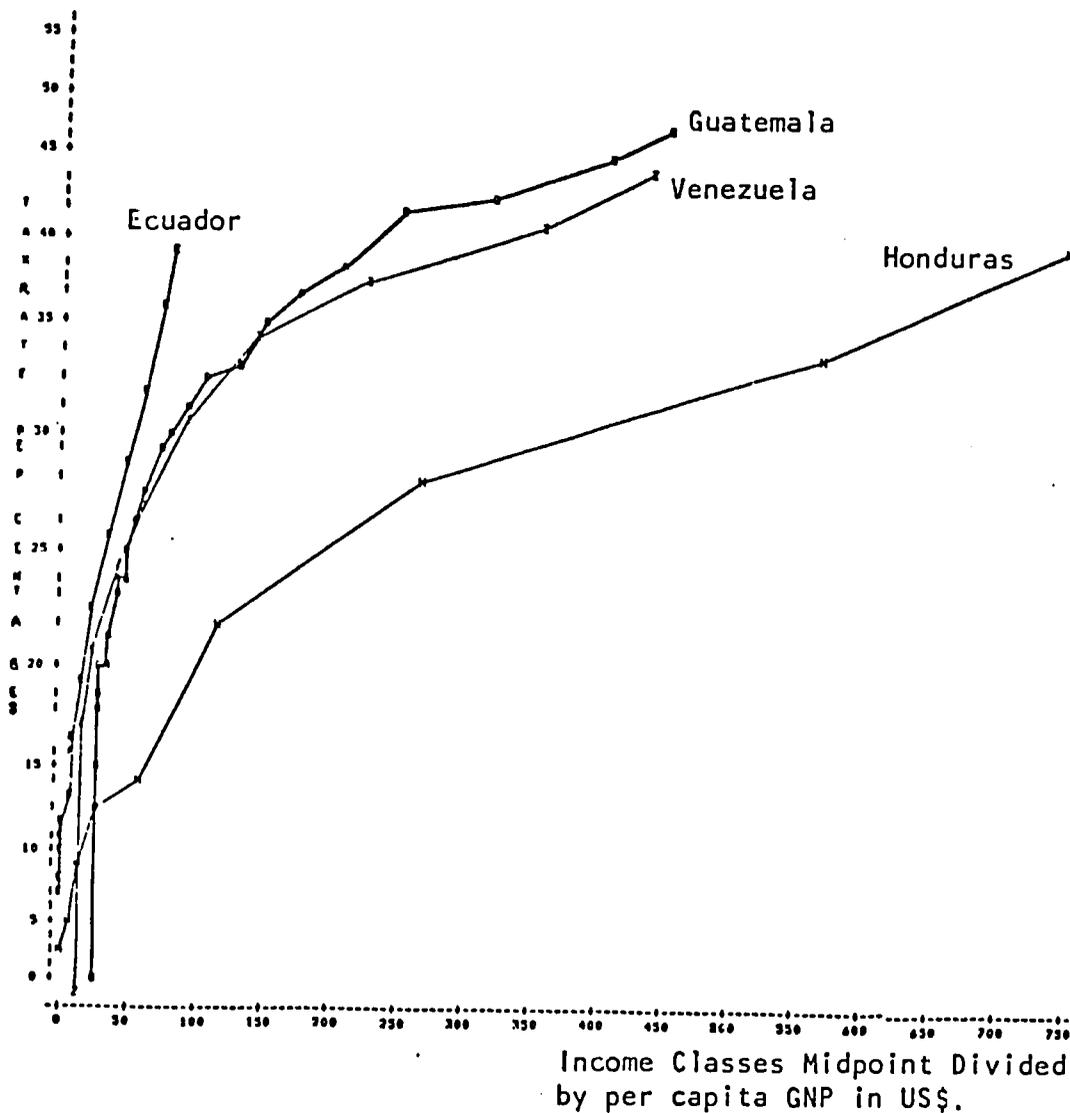


TABLE 6

RANGE OF VARIATION OF THE INCOME TAX STATUTORY RATES
FOR SELECTED LATIN AMERICAN AND
CARIBBEAN NATIONS^a

Country	Statutory Tax Rates (percent)			Boundaries Income Classes (in US\$)	
	Minimum	Median Statutory Tax Rate	Maximum	Minimum	Maximum
Barbados	40	50.0	60	\$ 7,500.0	\$ 15,000.5
Bolivia	n.a.	n.a.	n.a.	n.a.	n.a.
Brazil	5	32.5	60	885.0	28,052.8
Chile	6	26.0	56	306.3	3,063.0
Colombia	10.5	36.5	4.9	17.5	57,511.6
Costa Rica	39	47.5	50	25,000.0	62,500.0
Ecuador	8	18.0	40	0.0	35,897.4
Guatemala	15	24.2	48	16,892.0	337,839.0
Honduras	3	14.0	40	0.0	500,001.0
Jamaica	30	45.0	57.5	0.0	2,828.4
Mexico	3.1	30.2	55	0.0	89,111.1
Paraguay	5	31.0	30	0.0	12,820.5
Peru	6	15.0	50	2.3	69.5
Trinidad & Tobago	5	35.0	70	0.0	33,333.3
Venezuela	17.5	29.5	45	15,686.0	627,451.0

^aComplete versions of the statutory tax rates for each country are given in Table A-1.

SOURCE: Table A-1.

taxpayer must fall in a relatively low marginal rate bracket). Two other factors are also important in this regard. Brazil is one of the few countries in which a standard deduction (25 percent of salary income) limited to US\$1,238 may be claimed in lieu of business and nonbusiness deductions. Perhaps more importantly, there is a zero tax rate for the first taxable income class up to US\$885. These, along with other tax preferences, evidently leave a relatively large proportion of the population tax exempt. Thus, it is likely that both the distribution of the rates across income classes and the aggregate of exemptions and deductions seem to explain Brazil's relative low tax yields. With regard to Costa Rica, its minimum marginal rate (39 percent) is one of the two highest in the whole sample. Undoubtedly this contributes to its relatively high yields.

Another exception to the direct relationship between rate and yields is Mexico, which has tax yields below both the median and the average, but tax rates above the average rate structure. It should be noted, however, that in the case of Mexico the range of the tax rates (across income classes measured as a proportion of the average per capita income) is even wider than Brazil (Table 7). It is likely that most taxpayers are in the lower brackets and thus the relatively low tax yields apparently correspond to the lower tax rates (Figure 2). As was discussed before, those countries with a relatively high degree of fiscal decentralization, as in Brazil and Mexico, present relatively low income tax ratios.

On the other extreme, the country with the lowest maximum rate is Paraguay (30 percent), ranks also as the one with the lowest tax yield (0.03 percent) (Tables 6 and 1). The remaining countries with medium rates

TABLE 7

COMPARISON OF THE GNP PER CAPITA WITH THE DISTRIBUTION
RANGE OF THE INCOME CLASSES

<u>Country</u>	<u>GNP Per Capita^a (in US\$)</u>	<u>Minimum Income Class/ GNP Per Capita</u>	<u>Median Income Class/ GNP Per Capita</u>	<u>Maximum Income Class/ GNP Per Capita</u>
Venezuela	\$4,100	3.8	25.8	153.0
Barbados	3,930	1.9	3.2	3.8
Trinidad & Tobago	3,795	0.0	1.9	8.7
Mexico	2,240	0.0	4.8	39.7
Brazil	1,890	0.5	2.2	14.8
Chile	1,870	0.2	0.9	1.6
Ecuador	1,711	0.0	2.4	20.9
Paraguay	1,410	0.0	0.6	9.1
Colombia	1,410	0.0	22.1	40.7
Jamaica	1,398	0.0	1.5	2.0
Guatemala	1,120	15.0	28.9	301.6
Peru	1,040	0.0	n.g.	0.1
Costa Rica	1,020	24.5	36.5	61.2
Honduras	670	0.0	55.9	746.2
Bolivia	510	n.a.	n.a.	n.a.
Median	1,410	0.0	1.5	14.8

^aThese figures refer to year 1983 as appear in the World Bank Atlas 1985, except for those of Trinidad & Tobago (1979), Jamaica, and Ecuador which correspond to 1984.

SOURCE: Computed by the author based on Table 6.

also show relatively medium tax yields. Ecuador is the typical example of both rate and yields below the sample's average.

It is worth noting that there are three countries in the sample (Brazil, Chile and Venezuela) which can be characterized by using graduated proportional tax rates instead of marginal rates, as in the rest of the nations. Under the former practice the rates of each income bracket are applied to the total amount of taxable income, instead of to the taxable income in excess of the amount given by the lower limit of the corresponding income class--as it is done under marginal rates. However, an adjustment involving increasing tax credits transforms the proportional and graduated rate structures in a way which in effect produces the equivalent to a marginal tax rate structure.

One of the advantages of proportional graduated rates with tax credits is that it makes the calculation of the tax liability for the taxpayer much simpler than under marginal rates. In Brazil and Chile the level of the tax credits for each income class have been graduated in such a way that the tax liability (or equivalently the degree of progressivity) is the same as would be the case if the rate structure were expressed as marginal rates (see the Appendix). However, in Venezuela, the tax credit amounts are relatively low, which makes the tax liabilities much higher under this practice. This means that the implicit statutory marginal rates are in fact higher than the nominal graduated proportional rates.

In summary, considering that many factors other than the tax rate levels can actually affect the tax yields, it is worth noting that a direct relationship between rates and yields appears to characterize the countries considered here.

Progressivity of the Tax Rates

In regard to the degree of progressivity of the tax rate structure there are mainly three factors that can affect it. These are: the elasticity of the statutory rates with respect to the income classes, the extent to which these rates cover the actual income distribution in the particular country, and the level of the lowest income bracket at which the first tax rate is imposed.

The elasticities of the statutory tax rates (Table 8) indicate that with the exception of Chile the degree of progressivity in rate structures decreases as one moves from the lower toward the higher income groups.³ Ecuador is among those countries with rate structures whose progressivity increases at lower rates. The comparison of the elasticities and revenue yields (Table 8 with Table 1) suggests that there is no relationship between the degree of progressivity of the rate structures and the level of revenue yields. Evidently, revenues are more sensitive to factors other than the rate of progressivity increase. Among these are the effective coverage of the rates of the different income groups in the economies (which will be considered in the following section) and to the level of the rates themselves. Nevertheless the measure of progressivity (elasticity) would be more relevant in a comparison of alternative rate structures where questions of equity are important.

³It should be noted that the elasticity of the tax rates measures only the relative change in the statutory rates with respect to changes in the level of taxable income. This measurement is completely different and should not be confused with the relative changes in disabilities or revenue collections due to changes in taxable income, i.e., the rate elasticity.

TABLE 8
ELASTICITIES OF THE STATUTORY
TAX RATES

<u>Countries</u>	<u>Elasticity</u>
Chile	1.20
Barbados	0.73
Peru	0.70
Brazil	0.64
Trinidad & Tobago	0.58
Mexico	0.46
Colombia	0.45
Jamaica	0.42
Honduras	0.41
Guatemala	0.33
Costa Rica	0.29
Ecuador	0.29
Paraguay	0.26
Venezuela	0.25
Median	0.37
Mean	0.50

SOURCE: Computed by the author by regression in double log form. The specification of the model and the complete results of the regression can be seen in Table A-2.

Tax Rates Dispersion across Income Levels

With respect to the distribution of rates across income classes, the data show that with the exception of Peru all the countries' median income class values fall above the average per capita income of the economy (Table 7). The highest income class boundary goes as high as 746 times the amount of the average income in the economy and as low as approximately one and one-half times the per capita income as in Honduras and Chile respectively (see Table 7).

In contrast, in Peru the highest income class boundary goes up to only one tenth of the average income of the economy (US\$64), which means practically every taxpayer must fall in the highest marginal rate of 50 percent. In other words, the graduated rate structure must in practice work as a single flat rate.

In Table 7 it can be seen that all the countries which rank at the top in both the level of rates and tax yields can also be characterized as having a relatively narrow distribution of tax rates across income classes. The degree of distribution of income classes is measured by the number of times that the income classes replicate the average (per capita) income in the economy. Evidently the statutory marginal tax rates or equivalently the median tax rates are effectively higher if the actual distribution of income is not as narrow as the range of the current rate brackets. In terms of tax yields the above combination of narrow income brackets and relatively high tax rates has proven to be very effective.

On equity grounds such a combination may not be desirable. If a substantial number of taxpayers fall in the highest income bracket, all would be taxed at the same proportional (flat) rate in spite of the fact

that their taxable incomes may be substantially different. In such cases the tax system can be characterized as lacking vertical equity, particularly in the highest income bracket and in practice is less progressive or inelastic.

It should be noted that inflation can push taxpayers automatically into higher income brackets in spite of the fact that their incomes in real terms may not have changed. When this happens the yields of the tax increase rapidly and so will the tax burden. It should be noted that there are some countries in which some automatic adjustments are built in the system which help to take care of the above potential inequities. For instance, in Ecuador personal allowances (exemptions) are defined in terms of subsistence wages, which are periodically adjusted taking into account inflationary factors.

At the extreme a graduated statutory rate structure could in practice operate as a proportional or flat rate tax when all the taxpayers fall in the highest marginal rate bracket, which under these conditions might discourage both work effort and tax compliance. In the particular case of Peru the highest income class bracket begins at \$69, which seems very low in contrast to Peru's average per capita income of \$709 dollars. Therefore, a substantial amount of tax filers most likely fall in the highest marginal tax rate. As a matter of fact, income tax yields in Peru do not appear to be high at all (see Table 1). On the contrary, they rank among the lowest (i.e. Peru ranks thirteen in the sample), which seems to suggest a very poor revenue performance, most likely due to the relative high tax rates.

Those nations whose statutory income tax rate levels rank in the medium range of the sample's income class distribution are Costa Rica, Colombia, Mexico, Ecuador and Brazil. These nations, with the exception of Brazil and Mexico, also show medium tax yields. Brazil and Mexico, however, have relatively lower tax rates and tax yields than the rest of the countries ranking in the medium range of tax yields. With the exception of Ecuador, the median taxable income class for the countries in the group is high with respect to the average (per capita) income, which implies a higher effective average tax rate.

On the other hand, those countries which show a relative wide distribution of the tax rate structure with respect to the sample's income classes (i.e. the standardized scale that covers all countries income classes as a proportion of their average (per capita) income, applied in Figures 1-3) are Honduras, Venezuela and Guatemala (Table 8 and Figure 3). These nations are characterized by having a more equitable tax rate graduation across income groups, although their tax yields are somewhat lower. The tax yields of Venezuela and Honduras represent the median tax yield of the sample. Guatemala has a higher tax rate structure than the above two nations but unexpectedly low tax yields. Its ranking may be explained by a very large minimum income class bracket which is tax exempt. A positive tax rate is applied for the second income bracket which starts at US\$16,892, the second highest in the sample (Table 6). Evidently the high level of the zero rate bracket leaves out of the tax base a very substantial number of potential taxpayers, thus limiting tax yields.

Furthermore, if most taxpayers must fall in the low tax rate brackets, tax yields can be expected to be relatively low. This seems to be the case of Guatemala. Honduras and Venezuela show the widest range of brackets, but they do not have the lowest tax yields in the sample. In fact, Honduras and Venezuela (as shown in Table 1) represent the median tax yield in the sample. It should be noted, however, that in Venezuela in particular the tax rate structure actually applied is in practice higher when computed in terms of its marginal rates (see Appendix A).

In general the results seem to suggest an inverse relationship between the degree of distribution of tax rates across income classes and the level of tax yields, particularly for those countries with relatively narrow tax rate distributions. This seems to imply that the current income distribution for these economies is probably much broader than the range implicit in their statutory rate structures. On the other hand, countries with wide ranges in the tax rate distribution do not yield the lowest revenues. This result seems to suggest that their tax rates range must correspond to a great extent to the actual income distribution of their economies.

Summary and Conclusions

With regard to broad determinants of the relative importance of the income tax in the sampled nations, it can be concluded that part of the ranking of the income tax with respect to other central government taxes seems to be explained by the degree of fiscal centralization in the economies. Such is the case of the Caribbean nations which show both high degrees of fiscal centralization and high income tax ratios. At the other

extreme lies Brazil and Mexico with low tax ratios and low degrees of fiscal centralization. Apparently, the importance of the income tax comes into play, especially in the most fiscally centralized nations, after the easiest sources of taxation have already been used. In general, the characterization of the income tax systems seems to indicate that there exists a relationship between their main features and their tax yields. In particular, the level of the statutory rates seems to be the most relevant feature. The results suggest a direct relationship between the level of the rates and the tax revenues.

On the other hand, tax exemptions in general (deduction and allowances) seem to play an important role in the design of the tax rates. Those countries with relatively higher exemptions levels (Barbados and Trinidad & Tobago), which can be expected to cause relatively large reductions in their tax bases, are characterized by applying higher tax rates. In other words, the results seem to suggest a direct relationship between the amount of deductions and allowances and the level of the tax rates. As a corollary, those nations with relatively high exemption levels and also low tax rates can be expected to have very low tax yields (e.g. Paraguay and to a lesser extent Ecuador).

Another distinct feature among the countries is the difference in the calculation procedure of tax liabilities. Most countries apply marginal rates. However, Brazil, Chile and Venezuela use an equivalent calculation which applies graduated proportional rates and tax credits for each income class bracket. The main difference between these two practices is that the latter simplifies the calculation of tax liabilities into one step, which may seem more attractive to taxpayers.

Furthermore, and in regard to the distribution of tax rates across income classes, there seems to exist an inverse relationship between the degree of their distribution and the level of tax yields. Relatively high rates and narrow distribution across income classes may contribute to higher revenue collections. At one extreme this practice may discourage the payment of the tax itself. These cases seem to be illustrated by the results for the Caribbean nations and Peru respectively. In contrast, the practice of better distribution of tax rates and therefore more equitable tax rate structure does not necessarily mean lower tax revenues. This case is illustrated by the results in Venezuela and Honduras.

TABLE A-1
 STATUTORY INCOME TAX RATES
 (in U.S. dollars)^a

<u>Barbados</u>			
<u>Net Taxable Income</u>	<u>Basic Tax^b</u>	<u>Marginal^c Tax Rate (in percentage)</u>	<u>Tax Credits^d or Additional Charges</u>
Under \$7,500.0	\$ 0.0	0.00	None
7,500.0 - 10,000.0	1,500.0	40.00	
10,000.0 - 15,000.0	2,500.0	50.00	
Over \$15,000.0	5,000.0	60.00	
<u>Brazil</u>			
Under \$885.1	\$ 0.00	0.00	\$ 0.00
885.1 - 1,254.4	0.00	5.00	44.25
1,254.4 - 1,633.2	18.46	10.00	106.97
1,633.2 - 2,136.3	56.34	15.00	188.63
2,136.3 - 2,789.6	131.80	20.00	295.45
2,789.6 - 3,674.6	262.46	25.00	434.92
3,674.6 - 4,763.8	483.71	30.00	618.66
4,763.8 - 6,258.2	810.47	35.00	856.85
6,258.2 - 8,165.8	1,333.51	40.00	1,169.76
8,165.8 - 12,919.9	2,096.55	45.00	1,578.05
12,919.9 - 19,037.7	4,235.89	50.00	2,224.04
19,037.7 - 28,052.8	7,294.79	55.00	3,175.93
Over \$28,052.8	12,253.09	60.00	4,578.56
<u>Chile</u>			
Under \$306.30	\$ 0.00	0.00	\$ 0.00
306.31- 765.75	0.00	6.00	21.44
765.76- 1,225.20	27.56	11.00	59.73
1,225.21- 1,684.65	78.09	16.00	120.99
1,684.66- 2,144.10	151.60	26.00	289.45
2,144.11- 2,603.56	271.05	36.00	503.86
2,603.57- 3,063.01	436.45	46.00	764.22
Over \$3,063.01	647.79	56.00	1,070.52

TABLE A-1 (CONT.)

<u>Costa Rica</u>			
<u>Net Taxable Income</u>	<u>Basic Tax</u>	<u>Marginal Tax Rate (in percentage)</u>	<u>Tax Credits or Additional Charges</u>
Under \$25,000.0	\$ 0.0	0.00	None
25,000.0 - 30,729.2	6,843.8	39.00	
30,729.2 - 43,750.0	9,078.1	46.00	
43,750.0 - 62,500.0	15,067.7	49.00	
Over \$62,500.0	24,255.2	50.00	
<u>Colombia</u>			
Under \$4,829.2	\$ 289.4	10.59	None
4,829.2 - 9,219.4	1,184.4	16.84	
9,219.4 - 13,609.6	2,306.0	21.79	
13,609.6 - 17,999.8	4,410.8	27.83	
17,999.8 - 22,390.0	6,347.6	31.36	
22,390.0 - 26,780.2	8,341.0	33.86	
26,780.2 - 31,170.4	10,376.5	35.75	
31,170.4 - 35,560.6	12,454.0	37.27	
35,560.6 - 39,950.8	14,573.6	38.55	
39,950.8 - 44,341.0	15,649.2	39.12	
44,341.0 - 48,731.2	18,876.0	40.52	
48,731.2 - 53,121.4	21,027.2	41.25	
53,121.4 - 57,511.6	23,178.4	41.86	
Over \$57,511.6	24,211.0	49.00	
<u>Jamaica</u>			
Under \$1,414.14	0.00	30.00	None
1,414.34 - 2,020.20	424.24	40.00	
2,020.40 - 2,424.24	666.58	45.00	
2,424.44 - 2,828.28	848.30	50.00	
Over \$2,828.48	1,050.22	57.50	

TABLE A-1 (CONT.)

Ecuador*

<u>Net Taxable Income</u>	<u>Basic Tax</u>	<u>Marginal Tax Rate (in percentage)</u>	<u>Tax Credits or Additional Charges</u>
Under \$239.3	\$ 0.00	8.00	Additional charges: 10% & 1% for public & private universities, respectively. Also, 8% for the transit commission and the rehabilitation center are applied in the departments of Manabi and Guayas.
239.3 - 478.6	19.15	9.00	
478.6 - 717.9	40.68	10.00	
718.0 - 957.3	64.62	11.00	
957.3 - 1,196.6	90.94	12.00	
1,196.6 - 2,393.2	119.66	14.00	
2,393.2 - 3,589.7	282.05	16.00	
3,589.8 - 4,786.3	475.63	18.00	
4,786.3 - 5,982.9	694.02	20.00	
5,982.9 - 11,965.8	933.33	23.00	
11,965.8 - 17,948.7	2,309.40	26.00	
17,948.7 - 23,931.6	3,864.96	29.00	
23,931.6 - 29,914.5	5,600.00	32.00	
29,914.5 - 35,897.4	7,514.53	36.00	
Over \$35,897.4	9,668.38	40.00	

*Proportional Tax:

<u>Income Sources</u>	<u>Taxable Base</u>	<u>Proportional Tax Rate (in percentage)</u>
--Labor (minus	It is the Adjusted Gross Income minus the product of total personal allowances times the percentage of the income source of the total income of the taxpayer.	6
--Labor and Capital		6
--Capital and Exemptions without more than		18
--Other Income		18

TABLE A-1 (CONT.)

<u>Paraguay</u>			
<u>Net Taxable Income</u>	<u>Basic Tax</u>	<u>Marginal Tax Rate (in percentage)</u>	<u>Tax Credits or Additional Charges</u>
Under \$128.2	\$ 0.00	5.00	None
128.7 - 256.4	6.41	9.00	
256.4 - 384.6	17.95	16.00	
384.6 - 512.8	38.46	22.00	
512.8 - 641.0	66.67	28.00	
641.0 - 769.2	102.56	32.00	
769.2 - 1,025.6	146.15	31.00	
1,025.6 - 1,282.1	225.64	37.00	
1,282.1 - 2,564.1	320.51	26.00	
2,564.1 - 5,128.2	653.85	27.00	
5,128.2 - 8,974.4	1,346.15	28.00	
8,974.4 - 12,820.5	2,423.08	29.00	
over \$12,820.5	3,538.46	30.00	

<u>Guatemala</u>			
Under \$16,892	\$ 0.00	0.00	None
16,893 - 17,568	1,846.00	15.50	
17,568 - 18,243	1,965.00	18.00	
18,244 - 18,919	2,086.00	18.50	
18,920 - 19,595	2,211.00	19.00	
19,595 - 20,270	2,340.00	19.50	
20,271 - 21,622	2,471.00	20.00	
21,622 - 22,973	2,742.00	20.50	
22,974 - 24,324	3,019.00	21.00	
24,325 - 25,676	3,302.00	21.50	
25,676 - 27,027	3,593.00	22.00	
27,028 - 28,378	3,890.00	22.50	
28,379 - 29,730	4,194.00	23.00	
29,730 - 31,081	4,505.00	23.50	
31,082 - 32,432	4,823.00	24.00	
32,433 - 33,784	5,147.00	24.50	
33,784 - 40,541	5,478.00	25.75	
40,541 - 47,297	7,218.00	27.00	
47,298 - 54,054	9,042.00	28.25	
54,055 - 60,811	10,951.00	29.50	

TABLE A-1 (CONT.)

Guatemala (cont.)

<u>Net Taxable Income</u>	<u>Basic Tax</u>	<u>Marginal Tax Rate (in percentage)</u>	<u>Tax Credits or Additional Charges</u>
60,811 - 67,568	\$ 12,944.00	30.75	
67,568 - 84,459	15,022.00	32.25	
84,460 - 101,351	20,470.00	33.75	
101,352 - 118,243	26,171.00	35.25	
118,244 - 135,135	32,125.00	36.75	
135,136 - 168,919	38,333.00	38.75	
168,920 - 202,703	51,424.00	40.75	
202,703 - 270,270	65,191.00	43.00	
270,271 - 337,838	94,245.00	45.50	
Over \$337,839	124,988.00	48.00	

Mexico

Under \$298.0	\$ 0.0	3.10	None
298.0 - 599.4	9 2	6.00	
599.4 - 908.8	27.3	7.00	
908.8 - 1,470.7	49.0	8.00	
1,407.7 - 2,032.1	93.9	10.00	
2,032.1 - 2,650.4	150.1	12.90	
2,650.4 - 3,276.9	229.8	14.80	
3,276.9 - 3,901.4	322.5	16.80	
3,901.4 - 4,636.5	427.5	19.00	
4,636.5 - 5,376.8	567.1	20.50	
5,376.8 - 6,122.3	718.9	22.90	
6,122.3 - 7,546.5	889.6	24.20	
7,546.5 - 8,984.9	1,234.3	26.50	
8,984.9 - 10,799.2	1,615.5	29.00	
10,799.2 - 12,628.1	2,141.6	31.50	
12,628.1 - 15,201.2	2,717.7	34.00	
15,201.2 - 17,796.6	3,592.6	36.00	
17,796.6 - 20,409.1	4,526.9	38.00	
20,409.1 - 23,037.7	5,519.6	40.00	
23,037.7 - 25,686.7	6,571.1	42.00	
25,686.7 - 32,211.9	7,683.7	44.00	

TABLE A-1 (CONT.)

Mexico (cont.)

<u>Net Taxable Income</u>	<u>Basic Tax</u>	<u>Marginal Tax Rate (in percentage)</u>	<u>Tax Credits or Additional Charges</u>
32,211.9 - 38,783.7	\$ 10,554.8	46.00	
38,783.7 - 45,402.0	13,577.8	48.00	
45,402.0 - 52,061.5	16,754.6	50.00	
52,061.5 - 65,291.9	20,084.3	52.60	
65,291.9 - 78,608.6	27,043.5	54.00	
78,608.6 - 89,111.1	34,234.5	54.50	
Over \$89,111.1	39,958.4	55.00	

Honduras

Under \$2,500	\$ 0.00	3.00	None
2,501 - 5,000	75.00	5.00	
5,001 - 10,000	200.00	9.00	
10,001 - 25,000	650.00	12.00	
25,001 - 50,000	2,450.00	14.00	
50,001 - 100,000	5,950.00	21.00	
100,001 - 250,000	16,450.00	27.00	
250,001 - 500,000	56,950.00	34.00	
Over \$500,000	141,950.00	40.00	

Peru

Under \$2,3196	\$ 0.0000	0.00	None
2,3196 - 3,8660	0.0000	6.00	
3,8660 - 5,4124	0.0928	7.00	
5,4124 - 7,7320	0.2010	8.00	
7,7320 - 10,8247	0.3866	10.00	
10,8247 - 14,6907	0.6959	12.00	
14,6907 - 20,1031	1.1598	15.00	
20,1031 - 27,8351	1.9716	20.00	
27,8351 - 39,4330	3.5180	25.00	
39,4330 - 53,3505	6.4175	35.00	
53,3505 - 69,5876	11.2887	45.00	
Over \$69,5876	18.5954	50.00	

TABLE A-1 (CONT.)

<u>Trinidad and Tobago</u>			
<u>Net Taxable Income</u>	<u>Basic Tax</u>	<u>Marginal Tax Rate (in percentage)</u>	<u>Tax Credits or Additional Charges</u>
Under \$833.3	\$ 0.00	5.00	None
833.3 - 1,666.7	41.70	10.00	
1,666.7 - 2,500.0	125.00	15.00	
2,500.0 - 3,333.3	250.00	20.00	
3,333.3 - 4,166.7	416.70	25.00	
4,166.7 - 6,250.0	625.00	30.00	
6,250.0 - 8,333.3	1,250.00	35.00	
8,333.3 - 10,416.7	1,979.20	40.00	
10,416.7 - 12,500.0	2,812.50	45.00	
12,500.0 - 16,666.7	3,750.00	50.00	
16,666.7 - 25,000.0	5,833.30	60.00	
25,000.0 - 33,333.3	10,416.70	70.00	
Over \$33,333.3	16,666.70	50.00	

<u>Venezuela*</u>			
Under \$15,686	\$ 0.00	0.00	\$ 0.0
15,686 - 23,529	0.00	17.50	907.8
23,529 - 39,216	1,372.52	21.00	1,731.4
39,216 - 62,745	4,666.79	24.50	3,103.9
62,745 - 94,118	10,431.39	28.00	5,300.0
94,118 - 156,863	19,215.83	31.00	8,123.5
156,863 - 235,294	38,666.78	34.50	13,613.7
235,294 - 392,157	65,725.47	38.00	21,849.0
392,157 - 627,451	125,333.41	41.00	33,613.7
Over \$627,451	221,803.95	45.00	58,711.8

* Non-residents:

Wages, Salaries and other employee revenues...20 percent
Professional Fees (self-employed).....30 percent of 90 percent
Dividends (shares and stocks).....20 percent

TABLE A-1 (CONT.)

^a Applied to 1984 taxable income for every nation and computed in US dollars based on the exchange rate at December 31, 1984 as follows: Barbados (US\$1 = Bds \$2 Barbados dollars), Brazil (US\$1 = Cr\$ 3,184 Cruzeiros), Chile (US\$1 = Ps 128.24 Pesos), Colombia (US\$1 = PS 139.89 Pesos), Costa Rica (US\$1 = C48 Colones), Ecuador (US\$1 = S/.117.00 sucres), Guatemala (US\$1 = Q 1.48 Quetzales), Gibdyras (US\$1 = L 2 Lempiras), Jamaica (US\$1 = J\$4.95 Jamaican Dollar), Mexico (US\$1 = Ps 210.72 Pesos), Paraguay (US\$1 = ₡390 Guaranies), Peru (US\$1 = S/. 5,820 Soles), Trinidad & Tobago (US\$1 = TT \$2.40 Trinidad & Tobago dollars at Dec. 1979), Venezuela (US\$1 = Bs12.75 Bolivars).

^b The basic tax in the cases of Brazil, Chile, Jamaica and Venezuela was computed by the author applying the corresponding marginal rates for purposes of cross national comparisons.

^c In Brazil, Chile, and Venezuela the rates listed in this column are not marginal but porportional.

^d The tax credits listed in this column refer only to those applied when the country uses proportional tax rates instead of marginal ones.

SOURCES: Individual Taxes - A Worldwide Summary: Information Guide (New York: Price Waterhouse, 1985); Colombian Public Finance Ministry - Decree No. 2032/857 (1985); James Alm and Roy Bahl, "Evaluation of the Structure of the Jamaican Individual Income Tax," Metropolitan Studies Program, Jamaica Tax Structure Examination Project Staff Paper No. 15, The Maxwell School (Syracuse, New York: Syracuse University, March 1985).

TABLE A-2

ESTIMATED ELASTICITIES OF THE INCOME TAX STATUTORY TAX RATES
FOR SELECTED LATIN AMERICAN AND CARIBBEAN NATIONSMODEL

$$\text{Log } Y_i = \alpha + \beta \text{ log } X_i$$

where: Y_i = Statutory tax rates for country i
 X_i = Statutory income classes for country i

<u>Countries</u>	<u>β</u>	<u>Standard Error</u>	<u>T for Ho</u>	<u>R²</u>
Chile	1.28	0.0757	16.940	0.97
Barbados	0.73	0.0934	7.859	0.96
Peru	0.70	0.0323	21.810	0.97
Brazil	0.64	0.0814	7.936	0.84
Trinidad & Tobago	0.58	0.0375	15.481	0.95
Mexico	0.46	0.0145	31.678	0.97
Colombia	0.45	0.0182	25.062	0.97
Jamaica	0.42	0.0642	6.601	0.91
Honduras	0.41	0.0215	19.293	0.97
Guatemala	0.33	0.0109	30.206	0.97
Costa Rica	0.29	0.0694	4.253	0.85
Ecuador	0.29	0.0113	25.559	0.97
Paraguay	0.26	0.0750	3.465	0.47
Venezuela	0.25	0.0116	22.058	0.98

SOURCE: Computed by the author.

TABLE A-3

COMPARISON OF THE TAX LIABILITIES APPLYING MARGINAL RATES
AND PROPORTIONAL RATES (ADJUSTED BY A TAX CREDIT)
FOR BRAZIL, CHILE AND VENEZUELA
(in US dollars)

BRAZIL

Net Taxable Income	Tax Liability ^a	
	Under Marginal Rates ^b	Under Proportional Rates and Tax Credits ^c
Under \$885.1	0.00	0.00
885,1 - 1,254.4	18.46	18.47
1,254,4 - 1,633.2	56.34	56.35
1,633,2 - 2,136.3	131.80	131.81
2,136,3 - 2,789.6	262.46	262.47
2,789,6 - 3,674.6	483.71	483.73
3,674,6 - 4,763.8	810.47	810.48
4,763,8 - 6,258.2	1,333.51	1,333.52
6,258,2 - 8,165.8	2,096.55	2,096.56
8,165,8 - 12,919.9	4,235.89	4,235.90
12,919,9 - 19,037.7	7,294.79	7,294.81
19,037,7 - 28,052.8	12,253.09	12,253.11
Over \$28,052.8		

Chile

Under \$306.30	0.00	0.00
306.31 - 765.75	27.56	24.50
765.76 - 1,225.20	78.09	75.04
1,225.21 - 1,684.65	151.60	148.04
1,684.66 - 2,144.10	271.05	268.01
2,144.11 - 2,603.56	436.45	433.42
2,603.56 - 3,063.01	647.79	644.76
Over \$3,063.01		

TABLE A-3 (CONT.)

VENEZUELA

<u>Net Taxable Income</u>	<u>Tax Liability^a</u>	
	<u>Under Marginal Rates^b</u>	<u>Under Proportional Rates and Tax Credits^c</u>
Under \$15,686	0.00	0.00
15,686 - 23,529	1,372.52	3,209.77
23,529 - 39,216	4,666.79	6,503.96
39,216 - 62,745	10,431.39	12,268.62
62,745 - 94,118	19,215.83	21,053.04
94,118 - 156,863	38,666.78	40,504.03
156,863 - 235,294	65,725.47	67,562.73
235,294 - 392,157	125,333.41	127,170.66
392,157 - 627,451	221,803.95	223,641.21
Over \$627,451		

^aThe calculation of the tax liability refers to the taxable income defined by the upper boundary of the corresponding income classes.

^bThe calculation of the tax is as follows: first, the difference between the two boundaries is computed and the corresponding (marginal) rate is applied; secondly, the amount of the product is added to the corresponding basic tax.

^cThe calculation is as follows: first, taxable income (upper boundary) is multiplied by the corresponding (proportional) rate and from the resulting amount of this product is subtracted the tax credit for the corresponding income class.

SOURCE: Computed by the author based on Table A-1.