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INCOME REDISTRIBUTION THROUGH THE FISCAL SYSTEM: A STUDY ON
THE INCIDENCE OF TAXES AND PUBLIC EXPENDITURE IN COSTA RICA

by

MARVIN E. TAYLOR-DORMOND, M.A

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of
the requirements for the degree of

Doctor of Philosophy

Department of Economics

Carleton University

Ottawa, Ontario

April 1, 1997

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The undersigned hereby recommend to
the Faculty of Graduate Studies and Research
acceptance of the thesis,

**"Income Redistribution Through the Fiscal System: A Study
on the Incidence of Taxes and Public Expenditures in Costa Rica"**

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in partial fulfilment of the requirements
for the degree of Doctor of Philosophy

Chair, Department of Economics

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April 1997

To my wife Oreana and my sons Marvin, Jonathan and Sebastian, with the hope that the strong proof represented by our joint accomplishment of this objective, strengthens our spirits and our love.

In memory of my dear Professor and Supervisor, W. Irwin Gillespie, who passed away April 19, 1997, a few days after attending my defense. Despite his terminal illness, he never spiritually and intellectually left my side, and gave me an everlasting example of dedication, commitment and affection.

ABSTRACT

This thesis investigates the effect of taxes and public expenditures on the distribution of income in Costa Rica. The estimates are provided for three scenarios: standard, pro-poor and pro-rich.

The average standard incidence of the Costa Rican tax system according to the Basic Income concept is estimated at 37%. The overall tax structure is regressive for the first decile, mildly progressive up to the fifth decile, proportional up to the ninth decile and mildly progressive for the richest families. When Broad Income is used as a reference, the overall tax system becomes more regressive for the first decile and proportional thereafter. The average incidence is 47%. The use of alternative incidence assumptions or scenarios, does not significantly alter this general pattern of standard incidence. The introduction of taxes has a very low impact on the concentration level of the size distribution of income.

Total expenditure incidence according to the Basic Income and the standard scenario is estimated at 41% average. However, the standard incidence pattern is very pro-poor starting from 195% for the first decile and declining to 30% for the last decile. If the Broad Income concept is used as a reference, average incidence is estimated at 46%. In this case the relative impact ranges from 608% for the first decile to 31% for the richest families. The incidence pattern is strongly pro-poor from the first to the fourth decile and just mildly pro-poor thereafter. Alternative methods or scenarios lead to incidence patterns that are consistent with those generated with the standard case. Thus, while the tax system apparently accomplishes little redistribution towards the poor, it seems that public expenditures does fulfill this social function.

The pattern of net fiscal incidence is positive and pro-poor for the first six deciles, according to the standard scenario. It is negative and mildly pro-poor thereafter. These findings are not seriously challenged by alternative experiments or scenarios. In view of this, it seems safe to conclude that taxing and expenditure policies of the Costa Rican government, entail a net income equalizing effect.

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CHAPTER 1

INTRODUCTION

Government policy, through its powerful instruments - taxation, spending, borrowing, regulation, monetary control, and administration of property rights - strongly influences the course of economic activity. Public policy affects the allocation of resources, the rate of economic growth and the distribution of income and wealth.

This study deals with the effects of some of these public policies in Costa Rica. Specifically, the study examines the impact of taxes and public expenditures, upon the distribution of income in this country.

This is essentially an empirical investigation, motivated by the desired to contribute to the debate on the issue of income distribution and the role of the state in developing countries. The investigation also intends to assist in the documentation of the role played by the state in the development of Costa Rica, at a time in which policy makers are vividly debating and taking actions to redefine this role, in an effort to make the state more capable of meeting the current and future development constraints, demands and expectations facing the Costa Rican society.

The study represents a first attempt to investigate the subject with the help of the rich data base supporting this thesis, and at the level of disaggregation and scope of this work. Because of this, it is also the intention and hope of this endeavor that the insights it

may bring to the subject, as well as its natural limitations and shortcomings, and its policy implications, stimulate inquiry and further research on this matter in Costa Rica.

This introductory chapter sets forth the motivations, objectives and approach of the work. It also explains the plan of exposition of the thesis and provides some basic information on Costa Rica for the reader to have a better understanding of the social context within which the study takes place.

1.1 Motivations, Objectives, General Approach and Organization of the Study

Motivations of the Study

The distribution and subsequent redistribution of the economic product continues to be a most debatable topic in the developing world. The unequal distribution of income and wealth and the persistence of poverty can explain this powerful interest. More than one billion people in developing countries, accounting for one third of their population, live in poverty.¹ This affects almost one half of the population of Sub - Saharan Africa, South Asia, and India, one third of Middle East and North Africa, and 20% of the population of East Asia, China, Latin America and the Caribbean.²

¹See World Bank, Poverty: World Development Report 1990 (New York: Oxford University Press, 1990) pp. 24 - 37.

The intensity of the debate, have led to violent confrontations in different latitudes of the world. Distributional disparities, for instance, appear to have been a fundamental cause of the Nicaraguan revolution, the Salvadorian war and the social struggles still in process in Guatemala. The reasons for this intensity in the dispute hardly requires an explanation: an unequal income distribution hinders economic and political development, introduces a sense of injustice in the social system and provokes frustration and resistance among the citizens who are disadvantaged. This, in turn, undermines the commitment of a large part of the population to major social endeavors, and because of their insufficiency of economic means to improve their capacities and social opportunities, it inhibits them to contribute to economic progress according to their best potential and constrains their individual liberty.

History and current events have shown that the state apparatus can be used to perpetuate inequity and social injustice. But this institutional framework can also play a major role in the alleviation of economic disparities and their consequences.³ This choice is open to governments because the distribution of the economic product is not an outcome of the natural laws of economics, but a consequence of the human laws supporting the system of property rights. Naturally, the course of action that

²Ibid.

³For instance, the World Bank recommends a public sector strategy toward the poor consisting of three elements: the promotion of a productive use of the labor force, the provision of basic social services, such as education, health and nutrition, and the use of well targeted transfers. Ibid., pp. 3

governments may pursue will always be the result of each country's political and historical evolution.

The present study has been motivated by this debate and intends to contribute to the exchange of opinions by examining the effect of the government on the distribution of family income through the public budget, in Costa Rica. The investigation of this country - case is of particular interest, in view of the fact that Costa Rica has been able to achieve a set of social development indicators, which are well above those of the rest of the region and are unusual among countries of similar economic size.⁴ It seems interesting to determine whether or not in this case the state has played a role in the alleviation of the levels of economic disparity and, therefore in the development of domestic human resources and the country's political development. If the individual's well - being is interpreted as the center of economic activity, the documentation and understanding of this case is certainly meaningful.

This investigation is perhaps of especial relevance to the current situation in Costa Rica, as the country is confronting not only the global change of economic paradigms, but also the challenge of redefining the role that the public sector is to play in economic and social development.

Changes are natural and expected in social organizations but a balanced view must guide the design of revisions of the role of the state in developing countries. In current times of fiscal difficulties and pre - eminence of the free - market philosophical

⁴See for instance, Naciones Unidas, PNUD, Informe Sobre el Desarrollo Humano(Madrid: Mundi - Prensa Libros, sa., 1996)

posture, the risk of unbalanced opinions and actions can be important. In order to reduce this risk, it is necessary to shed light on the subject from all angles. in an effort to support. understand and document as thoroughly as possible both the decisions that may be taken in this area and their expected consequences. Such are the spirit and motivations of this work.

Objectives of the Study

In light of the above motivations, the general objective of this study is to increase the stock of knowledge on the role that the state has played in the development of Costa Rica. by investigating and supplying empirical evidence on the impact of the public budget upon the economic position of families. Within the context of this general objective the specific ends of the study are the following:

- i) to estimate and evaluate the size distribution of income in Costa Rica by decile
- ii) to estimate and assess the redistributive effects of the Costa Rican tax system,
- iii) to measure the incidence of government expenditures and
- iv) to furnish a set of estimates on the overall net fiscal impact of the public sector in Costa Rica.

The achievement of these objectives is expected to contribute to the understanding of the influence of governments on the income redistribution process. to the formulation

of a more ample framework of assessment of the role of the state in Costa Rica, and to the documentation of tax and expenditure policy proposals in this country.

On the General Approach of the Work

In order to produce the desired estimates the study follows an annual estimation procedure, uses the implicit general equilibrium model methodology and adopts an empirical approach. Likewise, it focuses exclusively on the direct impact of the Costa Rican government upon the distribution of income through the budget.

Thus, in the first place, this is an annual, as opposed to a lifetime, incidence study. As will be seen later, some authors have argued that incidence analysis must be carried out within a lifetime context.⁵ Others have expressed doubts regarding the usefulness of such an approach, from the policy point of view. They argue that the actions of policy makers are constrained by a very limited time framework, so that for practical and political reasons they should focus on the short term impact of their decisions.⁶ In addition, there is also a debate on the methodological advantages of each of these approaches. This, in sum, is still an unsettled controversy. In view of this and taking into account the motivations of this work, it was considered quite satisfactory to produce a set

⁵See chapter 2

⁶Ibid.

of annual estimates, especially if the modest insight that they provide on the subject has an effect on policy making and, above all, further stimulates research on these matters in Costa Rica.

Secondly, in concurrence with the general practice in the field, this study uses the implicit general equilibrium model approach to empirical estimation, as opposed to the explicitly calculated general equilibrium model approach. This is done with no apologies for the latter has not proven to be definitely superior to the former. One may believe that the use of computable general equilibrium model has the advantage because the specification of the model and parameters are made explicit. However, as major advocates of this approach have recognized, the problem is that there are many forms of general equilibrium models and the literature does not give solid ground to choose the appropriate parameter estimates.⁷ As a consequence, "the arbitrariness of shifting assumptions is thus to some degree replaced by the arbitrariness of both model form and parameter values"⁸ Thus, given the purpose of this work, I have considered it satisfactory to adopt the implicit general equilibrium approach in order to furnish the estimates provided in this study, although I recognize the limitations of this approach.⁹

⁷John Whalley and Anwar Shah, "The Redistributive Impact of Taxation in Developing Countries", in Tax Policy in Developing Countries, edited by Javad Khalilzadeh - Shirazi and Anwar Shah (Washington, D.C.: The World Bank, 1991), pp. 169.

⁸Ibid.

⁹See chapter 2 for a discussion on the methodological features, scope and limitations of this work.

Thirdly, this is an empirical study as opposed to a theoretical work. To be specific, the thesis is not intended to provide a new theoretical framework on the subject or to contribute to the development of the theoretical knowledge in this field, but to draw on the available theory of the incidence of taxes and public expenditures, in order to produce new and useful evidence on the impact of the public budget upon the structure of income distribution in Costa Rica.

Finally, the study examines only the direct impact of government actions through the collection of taxes and the provision of goods and services upon the distribution of income. Governments certainly affect the distribution of income, through other mechanisms, such as tariff and market regulations, borrowing, control and regulation of property rights and corruption schemes. Also, taxes generate excess burdens and create opportunities for evasion, and public expenditures are likely to produce excess benefits. None of these effects are included in the thesis. The study of market regulations, property rights, and corruption schemes is beyond the scope of this work. Concerning excess burdens, we have concurred with the view of Musgrave (1974) and Ruggeri, Van Wart and Howard (1996), in the sense that it is desirable to exclude this concept because of two reasons: first, the absence of knowledge on its distribution pattern, and second, the convenience of adopting an approach consistent with the treatment of public expenditures, for these, as has been said, are likely to produce excess benefits.¹⁰ With respect to

¹⁰R. A. Musgrave, K.E. Case, and H. Leonard, "The Distribution of Fiscal Burdens and Benefits" in Public Finance Quarterly (Vol. 2, No. 3, 1974) pp. 278 and G .C. Ruggeri, D. Van Wart and R. Howard, The Government as Robin Hood: Exploring the Myth (Kingston: The School of Policy Studies, 1996) pp.131

evasion, it was disregarded because of the complete lack of data on this subject in Costa Rica.¹¹

It is important to underline the fact that the main intellectual focus and policy thrust of this study is on questions concerning the income redistributional implications of taxes and public expenditures, that is, on questions that belong to the equity dimension of public policy. Budgetary activities of the public sector may also be investigated from the efficiency point of view. This is the subject matter of fields such as optimal taxation, cost benefit analysis and efficient pricing of public goods and services. The importance of these aspects of the problem is certainly recognized, but they do not constitute the focal point of the study. Thus, whether the taxes under consideration are efficient or distortionary, and whether public expenditures are efficiently or incorrectly priced, generate maximum net benefits or not, are efficiently or inefficiently produced and provided, are not questions to be explored in this investigation. Future research on these areas is necessary to obtain a broader view of the implications of tax and expenditure policies in Costa Rica, a view that includes both the equity and the efficiency dimensions of the problem.

¹¹The exclusion of this concept implies that evasion is assumed to be distributionally neutral. See Ruggeri et.al., *ibid.*

Expected Contribution of the Study

The study takes advantage of a rich micro data base, that summarizes for the first time in the country, in one single source, a significant amount of the information required by this empirical endeavor. With the support of this data base, the thesis represents a new contribution to knowledge, in the sense that it provides for Costa Rica a first time ever set of estimates and analysis by deciles of: i) the incidence of taxes, ii) the incidence of public expenditure, iii) the post - tax and expenditure income distribution and iv) the net fiscal incidence. In addition, although the Directorate General of Statistics and Census has already published some preliminary results on the income distribution by quintiles, as an additional contribution, this study has reconstructed the size distribution of income at the decile level and offers an analysis of the complete structure. The analysis distinguishes between Basic Income (the survey definition) and Broad Income (one of the study's key income definitions).¹²

Despite its limitations, because past research carried out in the country has been only partial or not disaggregated enough, this study represents a modest landmark on the investigation of fiscal incidence in Costa Rica. Hopefully, it will further stimulates research on this matter which will deepen, reaffirm or challenge the findings of this study, and, in so doing, enrich the content of this initiative.¹³

¹²See chapter 3.

¹³With respect to past research on the subject in Costa Rica, it is worth noting that in 1977, at the undisclosed request by the government, the UN Economic Commission for

Organization of the Work

The study is structured as follows. The second section of this first chapter presents a summary of the country's institutional framework within which the work is confined. Some basic facts about Costa Rica are herein discussed to provide a reference context to the reader.

Chapter 2 examines the theoretical context of the study and discusses the general methodological issues of the work. The theoretical framework deals with the theories of

Latin America and the Caribbean (ECLAC), made an attempt to furnish some incidence estimates for Costa Rica. The report was declared confidential and therefore never published. It presents some estimates only for three income groups: low, middle and high. A major limitation of this work is that the 1974 survey from which it derives the income distribution structure and the distributors for the whole country covers only the urban zones. See Comision Economica para America Latina, Incidencia Fiscal y Distribucion del Ingreso en Costa Rica (mimeo, 1977). For studies covering the taxation side only see. C. Conejo, M. Gutierrez y R. Mora, El Impuesto de Ventas en Costa Rica: Opciones de Exenciones de Gasto y su Impacto en la Equidad y la Recaudacion Segun el Consumo de los Hogares (San Jose: Mimeo, 1995). Studies restricted to the expenditure side are P. Sauma and M. Taylor Efectos Distributivos del Subsidio a la Educacion Preescolar, Primaria y media en Costa Rica, (San Jose: M.A. Thesis, University of Costa Rica, 1984), M. Taylor, Poverty and Public Expenditures on Social Programs: The Case of Costa Rica (Ottawa: M.A. Thesis, Carleton University, 1986), IICE. Los Programas Estatales de Caracter Social y su Impacto en la Distribucion del Ingreso Familiar: Informe Final (San Jose: Universidad de Costa Rica, Mimeo, 1985), A. Rodriguez, Estudio del Efecto Redistributivo del Subsidio Generado en los Programas Publicos de Financiamiento y Dotacion de Vivienda en 1982 (San Jose: Universidad de Costa Rica, IICE, No. 98, 1986), El Gasto Publico en Salud y su Impacto en la Distribucion del Ingreso Familiar (San Jose: Universidad de Costa Rica, IICE, No. 100, 1986), El Gasto Público en Programas de Seguridad Social. : Estudio de su Efecto Redistributivo en 1982 (San José: Universidad de Costa Rica , IICE, No. 102, 1986), P. Sauma, Impacto Redistributivo del Subsidio Generado en los Programas Estatales de Agua Potable y Alcantarillado en 1982 (San Jose: Universidad de Costa Rica, IICE, No. 99, 1986), Impacto Redistributivo del Gasto Publico en Programas Sociales (San Jose: Universidad de Costa Rica, IICE, No. 152, 1986) and J.D. Trejos y M.L. Elizalde, Costa Rica: La

income distribution, the theories of income redistribution, and the theory of tax and expenditure incidence. The methodological discussion addresses the general procedures underlying the estimates, the limitations of scope of the work, and the choice of the index of income concentration. The subsequent chapters present and analyze the findings of the study.

Thus, chapter 3 introduces and evaluates the characteristics of the size distribution of income in Costa Rica prior to the incorporation of the public sector. It begins with an analysis of the data sources and the income definitions that are used throughout the study. In the second part of chapter, the findings concerning this area are commented on.

Chapter 4 evaluates the incidence of taxes in Costa Rica, introducing in this way, for the first time, one side of the budget. The analysis departs from an examination of the magnitude of tax collections. Later, the tax shifting assumptions are discussed in detail and the empirical results derived from these assumptions are presented. The findings are provided for three scenarios defined in the chapter: standard, regressive (pro - rich) and progressive (pro - poor). The analysis concludes with an assessment of the income redistribution impact of the tax burden.

Chapter 5 examines the repercussions of the other side of the budget, i.e., the incidence of public expenditures. Following the same order of topics of the previous chapter, this unit first discusses the magnitude of public expenditures, continues with the

presentation of the expenditure incidence assumptions, and the analysis of the findings, and concludes with an evaluation of the redistributive implications of public expenditures.

Chapter 6 synthesizes the results of the foregoing chapters by examining the magnitude and characteristics of the incidence of both taxes and public expenditures, i.e., the net fiscal incidence results. The chapter contains two sections: in the first, the methodological aspects specific to this chapter, including the treatment of the existence of an unbalanced budget are dealt with. In the second the net fiscal incidence estimates are presented and analyzed.

Finally, chapter 7 summarizes the findings and conclusions of the study and elaborates on some of its policy implications. It also suggests some topics that in the course of this investigation were found to require further exploration.

1.2 Basic Facts about Costa Rica

Located in the southernmost part of Central America, Costa Rica is extended over an area of 51,700 sq. Km and is divided into seven provinces. It has an estimated population of 3.3 million, growing at a rate of 2.3% annually (see tables I.1 and I.1 of the appendix).

Costa Rica is classified by the World Bank as a middle income economy, with a GNP per capita income estimated at \$2,700 (1994). Agriculture represents 18 percent of

Table 1.1
Costa Rica: Basic Social and Demographic Indicators

Indicators	
Area	50,700 sq. km.
Population (1995)	3,3 million
Rate of population growth (1990-95)	2.3 percent
Life expectancy at birth (1994)	76 years
Infant mortality rate (1993)	13.6 per thousand
Population per physician (1992)	1,136
Population per hospital bed (1992)	345
Population with access to safe water (1993)	94 percent
Calorie intake (1992)	2,889 calories per day
Adult literacy rate	94.3 percent
Primary school enrollment rate (1993)	100.0 percent
Unemployment rate (1994)	4.2 percent
GDP (1995)	US\$9,234 million ($\approx$ 1,659 million)
GDP per capita (1995)	US\$2,759

Source: Central Bank of Costa Rica, Ministry of Finance, Ministry of Labor, World Bank

the country's GDP, one quarter is produced by industry, and services, including government, account for the remaining 60 percent. The service sector has been gradually increasing its GDP participation and is the largest employer.

The agricultural sector produces more than two thirds of export, including coffee, bananas, beef, sugar, and others. Non - traditional exports, which comprise of some wood and paper manufactures, plastics, textiles, cut flowers, fresh foods, seafood, and others, have been growing rapidly in the last ten years: their share in total exports rose from 36% in 1985 to almost 60% in 1995. In addition, net earnings from tourism has been on the rise during the last eight years, and currently surpasses coffee and bananas as the largest single source of hard currency earnings.

In the early 1980s, the Costa Rican economy was strongly affected by external shocks, including the deterioration of the term of trade, the increase of interest rates, the closing of international financial markets, and the oil shock. In addition, instability in neighboring countries discouraged new investment and tourism in Costa Rica. This, in combination with unsustainable domestic expansionary policies, led the country in 1982 to the most severe recession in 30 years. Since then, successive governments have adopted a series of stabilization and adjustment programs supported by the IMF, the World Bank and the Inter American Bank.

These programs have stressed the promotion of foreign trade and the liberalization of domestic markets. Accordingly, the extremely high tariff barriers that supported the import substitution strategy of the 60s and 70s were significantly lowered and are still in process of elimination. Furthermore the fixed exchange rate policy was abandoned, the

practice of price controls has been suppressed and financial markets have been gradually opened to private initiative, including the recent abolition of the five decade state monopoly in handling current accounts. In addition, the country has sought to strengthen its economic relations outside the region. It became a member of the General Agreement on Tariffs and Trade (GATT) in 1990 and has developed strong ties with Mexico, Colombia, Venezuela and Chile. In April 1994, Costa Rica signed a bilateral free trade agreement with Mexico, which took effect in January 1996, and is currently discussing possible free trade agreements with Colombia and Venezuela.

From the socio-political point of view, Costa Rica has emphasized the development of democracy and political stability. It is the only country in Latin America without an army and represents one of the most stable and strong democracies in this region. The country has distinguished itself from many other Central American and Caribbean neighbors, by its capacity to develop and maintain a strong system of checks and balances, as well as a constitutional scheme for normal and periodic government succession. In 1989, it celebrated its 100th Anniversary of democratic life.

Despite its modest size and income, Costa Rica has managed to perform above international standards in the development front, e.g., the country's life expectancy at birth is around 76 years, five years more than the average of upper middle income countries (Costa Rica is a lower income country), its infant mortality rate of 14 per thousand is the lowest in Latin America, its literacy rate is 94%, and almost all the population is supplied with potable water (see table 1.1).

Notwithstanding, a major challenge currently facing the country is the financing of its future development. To be specific, in the past, the country's initiatives and efforts were supported by its access to the international financial market and its debt repayment capacity. In addition, in the context of the confrontational scenario of the cold war, the country benefited from abundant official development assistance. None of these circumstance prevails today: the country must forge its path ahead by its own means, and rely on its own financial resources, all in the midst of the challenging circumstances of the international globalization process.

As the need to rely on its own resources becomes greater, the burden imposed by a chronic fiscal imbalance that has not been remedied by the stabilization and adjustment programs also becomes heavier. This is why local authorities perceive that the country should promptly make important decisions regarding the role and possession of assets by the public sector.¹⁴

The course of events suggests that in the medium term a number of public assets will be sold and that there will be an increasing participation of the private sector in the production and provision of goods and services traditionally supplied by the state.

This is the general country institutional context within which this study takes place. The recent evolution of events in Costa Rica and the cross-roads at which the

¹⁴See for instance Address by the President of the Republic at the Closing Ceremony of the Congress of the Chamber of Industries (San Jose: Presidential House, June 1996) Presidential Address at the Signing Ceremony of the Convenio IMAS - UNA, Brazos - Mente (San Jose: Presidential House, June 1996) and Ministerio de Hacienda (Comision para el Analisis del Deuda Interna), Deuda del Gobierno Central de Costa Rica: Problemas y Perspectivas (San Jose: mimeo, noviembre 1996).

country seems to be provide additional meaningfulness and use to this investigation. In order to maintain and improve the socio - economic achievements of the country, Costa Rican policy makers have little choice but to redefine the strong and leading role that the state has played over the last fifty years in promoting the development of the country.

Under these circumstances, the country is in the urgent need of assessing the possible impact of decisions that may be adopted today. Because of this, it is desirable to document as thoroughly and as objectively as possible the current situation, an end to which this study intends to contribute, although modestly.

CHAPTER 2

THEORETICAL FRAMEWORK AND GENERAL METHODOLOGICAL ISSUES

This chapter presents the theoretical context of the thesis and discusses the general methodological issues. The more specific methodological procedures, regarding the definition, measurement and analysis of the size distribution of income, the burden of taxes, the distribution of public expenditures and the overall impact of the budget, are deferred to later chapters.

The chapter is composed of three parts. The first addresses the theoretical context of the study, a framework that encompasses the theories of income distribution, the theories of income redistribution and the theory of fiscal incidence itself. Given this wide theoretical framework of reference, the second part sets forth the limits of the scope and the constraints of the work. The third discusses the general methodological procedures of the study, including the concepts of pre post - fiscal income, the selection of tax and expenditure distributors, and the selection of an index of concentration.

2.1 The Theoretical Context: On The Theories of Income

Distribution, Income Redistribution and Fiscal Incidence

In the general sense, incidence analysis draws upon a quite heterogeneous, extensive and perhaps a still very incomplete theoretical body of work. It draws upon the vast field of the income distribution and redistribution theories, for incidence analysis departs from and is ultimately concerned with the economic position of individuals with respect to their command over available resources. Likewise, it relies heavily on the theory of the incidence of taxes and public expenditures, for this provides the instrumentation to investigate the impact of taxation and expenditure policies upon the distribution of income.

Given this wide theoretical context of reference, it is necessary to specify the scope and limitations - theoretical, conceptual, analytical, methodological - within which this thesis is confined. For this purpose, previous elaboration on the major issues that the theoretical framework of concern encompasses and the alternative approaches that scholars have followed to deal with such issues, is in order. This elaboration, by no means, should pretend to be complete or thorough but it must be sufficiently comprehensive to accomplish a threefold objective. First, to show that this study addresses an issue of important concern in economic theory and policy; second, to underline the constraints to which this thesis is subjected; and third, to expose the theoretical and conceptual roots of this work and pave the way for the construction and

presentation of the specific methodological approach . With this threefold objective in mind, the following sections provide the necessary context for the above stated sources of theoretical reference - income distribution, income redistribution and incidence theory.

2.1.1 Selected Theories of Income Distribution

The theory of income distribution has been a topic of long standing concern of economists. It has also been an issue of strong controversy, owing to the ethical and value judgment factors involved. Perhaps because of this, parallel to the growing levels of abstraction of economic theory, economists frequently have opted to avoid the subject and confine it to the exploration of other social scientists. Despite this, the surveys by Mincer (1970), Blinder (1974), Lydall (1976), Sahota (1978), Bjercke (1970), Gillespie (1972), Reynolds and Smolensky (1977) and Baldares (1985) , show that the contribution by economists to the field actually has been quite extensive, although heterogeneous, both from the theoretical and methodological points of view.¹

¹ Jacob Mincer, "The Distribution of Labor Income: a Survey With Special Reference to the Human Capital Approach ", Journal of economic Literature (vol 8, 1970) pp. 1 - 26. K.Bjercke, " Income and Wealth Distribution. Part I: A Survey of The Literature". Review of Income and Wealth (Vol 16, 1970), pp. 235 to 252, A.S.Blinder, Towards an Economic Theory of Income Distribution (Massachusetts: The MIT Press, 1974). H.F.Lydall, "Theories of the Distribution of Earnings", in The Personal Distribution of Income and Wealth, edited by A.B.Atkinson (London: Allen and Unwin, 1976). G.S.Sahota, Theories of Personal Income Distribution: a Survey. Journal of Economic Literature (Vol. 16, 1978) pp. 1 - 55, W.I. Gillespie, On Current Developments in Income Redistribution Theory (Mimeo, draft, 1972), M.Reynolds and E.Smolensky, Public Expenditures, Taxes and the Distribution of Income, (London, New York :

In spite of the effort and interest of scholars, none of the known theories on the subject is able to fully or satisfactorily explain the income distribution process. For our purposes, however, it is worthwhile to focus on what thus far may be considered the most notable theoretical contributions in this field: the theories of inheritance, ability and earnings, the theory of human capital and the stochastic models.

Inheritance and Abilities Models

Kaldor has taken the view that material inheritance is the determining factor of the income distribution structure.² Thus, this view places a greater emphasis on unearned income instead of earned income. Income distribution is associated with the accumulation of wealth over time, and this wealth, transmitted from generation to generation by the mechanism of inheritance, shapes the income structure. According to Kaldor, “capitalists perpetuate their economic positions: the more they have, the more they invest and accumulate, the more profits they earn, the more capital gains they reap, and so the spiral goes on...The resulting functional distribution is considered to correspond to social classes”.³

Academic Press Inc, 1977). pp. 3 - 7. M. Baldares La Distribucion del Ingreso y los Sueldos en Costa Rica, (San Jose: Editorial Costa Rica, 1985)

² N.Kaldor, “Alternative Theories of Distribution”, Review of Economic Studies (Vol 23, 1956) pp. 83 - 100.

³ N. Kaldor, op.cit., quoted by G.S.Sahota, “Theories of Personal Income Distribution: a Survey”, Journal of Economic Literature (Vol. 16, 1978) p. 23

To regard material inheritance as the only factor determining the income structure seems too partial and simplistic. A wider inheritance concept and theory has been developed mainly by Meade.⁴ In this author's view, inheritance consists of what he calls fortunes, which are defined as bundles of four major endowments: genetic makeup, parental nurture and training, social contacts and inherited property. The interaction of these endowments, and a set of positive and negative feedbacks related to these endowments, affect the amount of savings and incomes, as well as the accumulation process, thereby shaping the income structure. Positive feedback includes such aspects as higher rates of return to the investment, higher saving propensities and convenient demographic practices, such as random mating and lower fertility. Negative feedback may be generated by income equalizing government policies such as progressive taxation and public expenditures on health and education. Although this analysis ignores factors associated with the initiative, effort and ability of individuals, there is no doubt that inheritance factors deserve a place in the explanation of the very complex process whereby the size distribution of income is determined.

An alternative explanation has been given by ability models. Early scholars, departing from the observation that "abilities (mental and physical) are distributed normally, just as various physical traits such as weight and height, of the human body, ... [had inferred that] incomes were also distributed normally".⁵ Contrary to this conclusion,

⁴ See G. S. Sahota, op.cit. pp. 24

⁵ G.S.Sahota, op.ct. p. 3

empirical evidence showed that income follows a skewed distribution. According to Pareto's finding, "incomes were distributed not normally but lognormally and the skewness to the right had a flat tail meaning substantial unequal distribution".⁶ The reconciliation of these two elements originated a number of theories and models based on the ability component of the income distribution.

One of the first explanations of this discrepancy was given by Pigou (1924). In his view, on the one hand, as opposed to ability, the distribution of wealth - a major income determinant - tends to be skewed toward the upper income groups. On the other, while the distribution of income among homogeneous groups of workers may be normal, the combination of two or more normal distributions leads to an overall lognormal or skewed distribution, if the combination is multiplicative rather than additive.⁷

Pigou's suggestions were later supported by the evidence collected by Staehle and Miller.⁸ In addition, Staehle has observed that ability is actually a determinant of the wage rate and not of the absolute amount of earnings, from which he concluded that the position of individuals in the income structure is also affected by other factors such as work effort, preference for leisure and employment opportunities.⁹

In search for measuring the influence of ability, some researchers have correlated the IQ with earnings. However, because of the difficulty in separating the impact of

⁶ Ibid.

⁷ A. Pigou, The Economics of Welfare. Fourth Edition. (London: Macmillan, [1920] 1932). Cited by G.S.Sahota, op.cit. p. 4

⁸ See M. Baldares, op.cit. p. 30

⁹ Ibid.

variables such as social environment, nurture provided by the household, quality and number of years of education, opportunities, chance, and the like, the results have been controversial.¹⁰ This has been clearly recognized by Lydall who, while suggesting the strong presence and influence of a factor "D" which encompasses elements such as the person's drive, doggedness, leadership and dynamism, upon the conformation of the size distribution of income, has indicated that to find ways for measuring the influence of this factor and explaining the reasons for some people to be endowed with more and others with less is a difficult task.¹¹

The Theory of Human Capital

The theory of human capital explains the difference in personal income as a result of the disparity in the amount of investment in human capital - education, health and training in the workplace - among individuals. It also recognizes that the optimal investment levels depend on the individual's personal traits. Income is therefore viewed as the return to the individual of his net lifetime human capital investment.¹² The model

¹⁰ M. Baldares, op.cit. pp. 30 - 31 and G. S Sahota, op.cit. pp. 3 - 4.

¹¹ M. Baldares, op.cit. pp. 31

¹² See for instance Jacob Mincer op.cit. , G. Becker " Investment in Human Capital": A Theoretical Analysis", The Journal of Political Economy (Vol 70, Oct. 1962.), pp. 9 - 49, and Human Capital " (New York: Columbia University Press, 1964). T. Schultz. "Reflections on Investment in Man" The Journal of Political Economy (vol 70, Oct. 1962) pp. 1 - 79.

assumes the existence of perfect markets and perfect information, particularly regarding the return to different quantities and qualities of human capital investment and the ability of the market to respond directly to this investment. Under these conditions, the individual is assumed to maximize his lifetime discounted earnings, by selecting a lifetime pattern of human capital investment. The model cannot predict a specific functional form of the size distribution of income but anticipates positive skewness, as a result of the investment decisions.¹³

The criticism to this approach is important. For instance, it has been argued that it is applicable only to labor income; that the rate of return to the investment in human capital is not constant over time; that excessive emphasis is given to education in contrast with other important factors such as material and sociological inheritance and abilities; that the notion of a unit of human capital is non - operational; and that the assumption that the individual maximizes his lifetime discounted earnings is highly questionable for it implies that leisure has no value. In spite of this, the human capital theory has been very useful to understand and emphasize the relationship between human development, earnings, and income distribution.¹⁴

¹³ A.S. Blinder, Towards an Economic Theory of Income Distribution (Massachusetts: The MIT Press, 1974), pp. 15

¹⁴ See above references.

Related Explanations

Closely related to the above theories is the job selection approach. Within this approach, Timbergen has indicated that the distribution of income arises from the compatibilization of vectors of attributes possessed by workers and vectors of attributes required by each job. Individuals are compensated for the tension or discrepancy between the vectors of personal attributes and the vectors of job attributes. Thus, given the existence of a wage structure, a job self - selection process by utility-maximizing workers determines the pattern of income distribution.¹⁵

An important conclusion of this argument is that the closer the distribution of individual attributes to the distribution of job attributes, the more equal the income distribution tends to be. Hence, education can be an effective instrument for the equalization of the distribution of income when it is used to bring these two sets of distributions closer to each other.

From another perspective, Lydall has stated that in hierarchical organizations, the presence of which is dominant in modern societies, the earnings of individuals depend to a large extent on the number of people they supervise.¹⁶ Lydall has argued that according to the empirical evidence, not more than 45% of the variability of earnings is explained by

¹⁵ Jan Timbergen, Income Distribution: Analysis and Policies (Amsterdam : North - Holland, 1975)

¹⁶ See Harold Lydall, The Structure of Earnings (Oxford: Clarendon Press, 1968) and "Theories of the Distribution of Earnings" in Atkinson, op.cit. pp. 15 - 46.

the ability factor and perhaps an additional 10% may represent a transitory element. The remaining percent is likely to be explained by this hierarchical factor in conjunction with the "D" factor previously referred to.

Stochastic Models

From a different angle, stochastic models, devoid of economic content, intend to account for the fact that income distribution structures are quite stable over time, which suggests the possibility of their being generated by stochastic processes.

In search for functional forms to fit the data, Gibrat, one of the most notable proponents of this line of thought, observed that the product of a large number of random variables converges toward a lognormal distribution, which has the positive bias normally displayed by the size distribution of income.¹⁷ Thus, Gibrat concluded that the income structure can be generated by a first order Marcov process whereby income depends only on previous income observations and a set of multiplicative random influences.¹⁸

¹⁷ R. Gibrat, "On Economic Inequalities", International Economic Papers (Vol. 7, 1957), pp. 53 - 70.

¹⁸ A first order Marcov process is defined as $Y_t = R_{t-1} Y_{t-1}$, where R_t is a sequence of serially independent random variables, independent also of Y_t . Thus, if Y_0 is income at time 0, $Y_t = Y_0 * R_0 * R_1 * R_2, \dots, R_{t-1}$. As t gets large, the distribution of Y_t tends towards the lognormal. See A. Blinder, op. cit. pp. 3.

Champernowne has also shown that under certain assumptions the stationary income distribution approximates the Pareto distribution.¹⁹ Concurring with Gibrat, Champernowne has conceived the income distribution as determined by a process whereby an individual's income in one period depends only on the last period income and a set of random shocks, but unlike him, defines a finite number of income classes and an indicator of the probability of an income earner to be in each class.

Notwithstanding the precision with which these stochastic models replicate the distribution of income, their contribution to the understanding of the forces behind the determination of the income distribution is limited. As Blinder correctly asserts, "assuming a stochastic mechanism, no matter how complex, to be the sole determinant of income inequality is to give up before one starts. It is antithetical to the mainstream of economic theory which seeks to explain complex phenomena as the end result of deliberate choices by decision makers".²⁰ The weight of the argument lies on the behavior of the disturbance factor which leads to negligible gains for the development of economic theory.

Some of the major lines of thought that have been pursued in search of explanations of the origin and conformation the size distribution of income have been overviewed. Incidence studies, however, not only take as a reference the size distribution of income generated by one or a combination of the processes accounted by these

¹⁹ D.G. Champernowne, "A model of Income Distribution " Economic Journal (Vol 63, June 1953) pp. 318 - 351.

²⁰ A.S.Blinder, op. cit. , pp.7 .

theories, but the simultaneous or ex post income redistribution process. In fact, the fiscal incidence process itself constitutes a redistribution mechanism. How is this income redistribution process explained?

2.1.2 Theories of Income Redistribution.

The theoretical endeavors to explain the income redistribution process can be classified into two major branches: positive models and normative models. The first, based on economic and rational man assumptions, attempts to explain why societies adopt specific courses of action regarding the income redistribution process. Normative models or postulates explain why societies *should* adopt a specific course of action to redistribute income if it is to maximize collective welfare.

Positive models

Concerning positive models, following Rodgers' approach, a distinction can be drawn between voting models, insurance models and preference or utility interdependence models.²¹

²¹James D. Rodgers, "Explaining Income Redistribution" in Redistribution through Public Choice, edited by Harold Hochman and George Peterson (New York: Columbia University Press, 1974), pp. 165 - 189.

Among the early voting models the seminal work by Anthony Downs stands out.²² The critical factor of the simplified voting model versions, represented by Downs's study, is the voter's income level. In this author's view, political parties redistribute income from the best to the least endowed as a mechanism to obtain votes. Within a simple majority rule, the party that offers to redistribute income from the top 49% to the bottom 51% of the income structure win the elections. The key issue is the ability to maintain the coalition of the bottom 51%. Once this is achieved, any party offering to redistribute income in favor of a group other than this coalition is defeated.

Tullock has observed that under these circumstances the median voter has an advantage over the remaining voters, in the sense that he can associate himself with the remaining 49% in order to form another coalition that may improve his own position.²³ However, if the original coalition receives an average amount of benefits greater than that received by the remaining 49%, a tendency will exist for the winning coalition to remain solid.

Three factors may prevent the redistribution process from reaching an income equalization stage.²⁴ First, the bottom 51% may perceive that the work disincentive introduced by the redistribution process upon the upper income groups may reduce the

²² . Anthony Downs, An Economic Theory of Democracy (New York: Harper and Row, 1957). See also G.J.Stigler " Director's Law of Public Income Redistribution", Journal of Law and Economics (April, 1970), pp. 1 - 11 and J.Davis. " On the Incidence of Income Redistribution ", Public Choice (Spring, 1971), pp. 73 - 74.

²³ G.Tullock, " The Charity of the Uncharitable " Western Economic Journal (December, 1971), pp. 379 - 392 and James Rodgers Op. Cit., pp. 167.

²⁴ James D.Rodgers. op.cit. pp 167 - 168

size of the pie. They may find it preferable to redistribute a small share of a large pie rather than a large share of a small pie. Second, there is an expectation of those in the lower part of the distribution to eventually be in the upper section, and third, voters in the upper part of the distribution tend to have stronger political power and may use their influence to redistribute income in their favor.

A more sophisticated voting model version has been developed by Buchanan and Tullock.²⁵ These authors have recognized the fact that the income redistribution process is not necessarily vertical, from upper to lower income groups, which suggests that the process is not necessarily ruled by the individual's income position. Within this framework, although the idea of the government being used to obtain individual benefits and to disperse costs to others is retained, the redistribution process is conceived as the result of a decision rule that also requires less than consensus to operate.

Decision committees are conformed to take action on alternative issues and a vote transaction process takes place. The income redistribution process does not necessarily flow from upper to lower income groups for the decisions depend on the conformation of the committees.

Buchanan and Tullock have called the difference between the benefits that individuals would obtain under unanimity rule and the actual benefits they obtain under the less than unanimous rule, external costs. These external costs decline as the size of

²⁵ J.M.Buchanan and G.Tullock, The Calculus of Consent (Ann Arbor: University of Michigan, 1972).

the decision committee increases. At the same time there are also increasing negotiation costs to reach the unanimity rule. The optimal size of the decision committee will be given by the intersection between the declining external cost curve and the increasing negotiation cost curve.

The important observation of these more sophisticated models is that individuals find themselves sometimes in the minority, in which case they are expected to bear the cost of the decision, and in some other times in the majority in which circumstance they will repeal the benefits against the minority. Thus, the conclusions of these models differ from those of the simplified versions on three accounts. First, there is no certain rule of redistribution, second, every decision of the government may involve an income redistribution process, which takes place not necessarily through the transfer system and, third, the redistribution process does not necessarily follow a vertical pattern, from upper to lower income brackets.²⁶ Within this context, it is difficult to distinguish a clear cut prediction of the end result of this interaction.

Insurance models offer another avenue of exploration of the income redistribution process. In the basic specification of these models, individuals facing the same risk seek to organize themselves and formulate mechanisms of protection against their possible fall to a lower income bracket. They may do so by contributing to a regular fund which will

²⁶ To illustrate the case, in a recent event the coffee producers of Costa Rica were able to obtain a reduction of taxes on their profits. In order to compensate the loss of revenue, the government had to increase some other taxes. The fact to stress here is this ability of the coffee growers to get rid of a specific tax liability. However, the final distribution of the burden of this strategy would have to be examined in light of the tax incidence theory.

eventually be used to provide supplementary income to those who may be affected by misfortune. Under these circumstances, the insurance mechanism leads to an income redistribution process that entails an income flow from those who contribute to the fund to those who happen to fall into adversity. Since the goal is to protect individuals from falling to unacceptably low income positions, in the final analysis, the insurance device becomes a mechanism to redistribute income from higher to lower income groups.

A third avenue of positive thought has been suggested by the interdependent utility approach.²⁷ The models based on this approach incorporate transfers in the utility function as an argument. This may take the form of a factor to which the individual's utility is sensitive and which he hopes to alter by engaging in an income redistribution process, or of an index of inequality which the transferor may wish to modify.

Specifically, the functional form presented by these models may follow three alternative approaches: i) in the first, the transferor derives utility from the transfer itself, that is, from the act of giving and independently of the effect that the transfer may have on the recipient. ii) In the second, the benefits the recipient obtains from the transfer are represented by an index such as income and the transferor is assumed to derive utility from increases in the utility experienced by the recipient. ii) In the third, some goods

²⁷ See for instance E.Olsen, "A Normative Theory of Transfers", Public Choice (Spring 1969, pp. 39 - 58), H.M.Hochman and J.D.Rodgers "Pareto Optimal Redistribution", American Economic Review (September 1969), pp. 542 - 557. R.Zeckhauser, "Optimal Mechanisms for Income Transfers", American Economic Review (June, 1971), pp. 324 - 334.

and services consumed by the recipient such as health, education, housing, are assumed to have an impact on the utility of the transferor.

In the first specification, since the transferor derives utility from the mere act of giving and not because of the betterment of the recipient's well - being, that the act of giving does not discriminate among recipients is implied. This behavior is likely to produce a lower level of collective utility than the one that would arise from an act of giving, targeted to what may be socially regarded as worthy causes. The conclusion is that this specification may explain private transfers but not public transfers. The second specification leads to the conclusion that the redistribution process generates an increase in utility as long as the transfers are made in cash or the equivalent. Finally, the last specification predicts that utility increases, insofar as the redistribution process is carried out with in - kind transfers.

The discussion has thus far dealt with avenues that have been explored to account for the redistribution process within the framework of positive thought. The problem has also been addressed from an ethical perspective.

Normative Models

It has been said that normative models or postulates seek to indicate the course of action that societies *should* adopt to redistribute the economic resources available to its

members. One way of introducing the issue is by recalling the general problem posed by the Bergson - Samuelson social welfare function.²⁸ Let $W = W(v_1, v_2, \dots, v_n)$ be a social welfare function where v_n represents the values of the community that might affect social welfare. Adopting the traditional assumptions about consumers, production, and exchange, the optimization of this function shall lead to a set of necessary conditions which will conform a Pareto frontier of multiple optimal social choices.²⁹ Assuming that society is willing and able to sustain any point along the frontier, the problem is how to choose the desired position on this frontier. This is precisely the normative issue that is to be resolved by the ethical arguments discussed below.³⁰ The need for a collective decision arises from the recognition that there are a number of optimal welfare positions that society can achieve. It is also assumed that individual utilities are to some degree interdependent and therefore is to the benefit of each individual to adopt a collective decision. Also, it is recognized that resources are limited and that the achievement of and optimal welfare position requires them to be optimally distributed.

The ethical roots of the income redistribution process have been surveyed by Gillespie.³¹ At least five normative sources that explain the society's engagement in an

²⁸ A. Bergson, "A Reformulation of Certain Aspects of Welfare Economics" in Quarterly Journal of Economic (Vol. 52, February, 1938), pp. 314 - 344 and P.A. Samuelson, Foundations of Economic Analysis (Cambridge: Harvard University Press, 1947), chap. 8. See also, D.C. Mueller, Public Choice (New York: Cambridge University Press, 1979), pp. 173 - 183.

²⁹ Ibid.

³⁰ D.C. Mueller, op.cit., pp. 175

³¹ W.I. Gillespie, (1972) Op.Cit. pp. 5 - 35. See also A.K. Sen, Collective Choice and Social Welfare (San Francisco: Holden - Day, 1970)

income redistribution process can be distinguished: i) the ethics of equal distribution of resources, ii) the ethics of equal satisfaction of needs, iii) the productivity ethics, iv) the ethics of maximum community happiness, v) the ethics of equal sharing.

Agrarian egalitarianism is the precursor of the ethics of equal distribution of resources. The fundamental tenet of this line of thought is that the rewards of the economic system are to be linked to efforts and not to the possession of natural resources. Thus, from the ethical point of view, resources must be equally distributed. Furthermore, since abilities are unequally distributed among individuals, the argument should be extended to call for a further income redistribution process, intended to offset the inequalities that such an unequal endowment of abilities may create. Only in the presence of an equal distribution of natural resources and an income redistribution mechanism that compensates for the existing differences in abilities, does the size distribution of income reflect a fair reward to the efforts of individuals participating in the economic process.

The second ethical argument - equal satisfaction of needs - is rooted in the socialist posture. According to this argument, as in the agrarian ethics, individuals have a natural right for an equal sharing in the distribution of natural resources. However, unlike agrarian ethics, income should be distributed not upon the basis of individual efforts but in accordance to individual needs. And since needs are not evenly distributed, in order to ensure their full satisfaction, the economic product should be redistributed, regardless of the efforts and abilities that individuals may have put in producing it.

A third line of normative thought arises from the recognition that the exchange economy, that is, the factor productivity criteria, provide unacceptable ethical foundations for the distribution of income. To accept the productivity ethics means that differentials in opportunities and in inherited factors such as genetics, capital or abilities constitute appropriate basis for the distribution of the economic product. In addition, within the framework of the productivity ethics, the rule is that the income appropriation process should be linked to the marginal productivity of factors.

However, the fact of the matter is that in the particular case of the worker, his marginal productivity depends on aspects other than his contribution such as the number of his co - workers, the capital provided by the owners of the production centers, and the decisions of the latter with respect to the type of technology to be applied in the production process.

If from the ethical point of view, differentials in opportunities and inherited factors cannot be accepted to justify income disparities, and if the worker's marginal productivity does not only depend on his effort, initiative, human capital investment and labor hours, but also on factors beyond his own control, it is unreasonable to derive his income rights from the limited criteria of the market.

But if the exchange economy does not provide acceptable ethical bases for the distribution of income, on what grounds is or should the economic product be allocated among individuals? The grounds are stipulated by the social - political - institutional framework. As Hochman and Peterson have noted, "rights in person and property that are

conferred by the body politic, provide the legal ground rules for the economic behavior that determines individual incomes".³² Or in the words of Gillespie, "it is ... the responsibility of the community to devise laws concerning property rights and rights to income (via taxation), based upon some set of commonly held ethical beliefs about deservingness".³³

This process, whereby property rights are designed and granted, produces at the same time the ethical bases and framework for the redistribution of the economic product. In other words, socially acceptable rules to guide the distribution of rights to income and property cannot be derived from the market but from the socio - political process which at the same time determines the rules for a further re - allocation of these rights. Within the context of democratic systems, this conception leads back to the ideas regarding the voting systems, or in general, the public choice mechanisms above mentioned.

The notion of utilitarianism has inspired another avenue of explanation of the income redistribution process.³⁴ Utilitarianism has contended that the goal of the society is to maximize the aggregate happiness or utility of its members, which requires the equalization of individual marginal utilities. What are the implications of this contention in terms of an income redistribution process? Unfortunately, they are uncertain.

³² Harold Hochman and George Peterson, op cit pp xiii.

³³ W. I. Gillespie, (1972) Op.Cit. pp. 18

³⁴ For an exposition of the concept of utilitarianism see J.S.Mill, "Utilitarianism". The Great Books of the Western World Vol 43 (Chicago: Encyclopedia Britannica, 1988). Chapter Two, pp. 447 - 457.

Assuming that marginal utility of income declines as income increases and that every individual has the same utility - producing capacity, it would imply that income should be equalized, i.e., income should be transferred from the richest to the poorest individuals. The opposite holds if the marginal utility schedule increases as income increases. Even worse, if individuals are not capable of producing the same amount of utility, income would have to be transferred from the least to the most efficient utility producers regardless of the income position they may occupy. In sum, the conclusions vary, depending on the assumptions with respect to the marginal utility schedule and the utility producing capacity that one may adopt. Therefore, utilitarianism, or in particular, the maximum community happiness principle, is not "an admissible ethical judgment for the purpose of determining an optimal redistribution of income" ³⁵

Related to the notion of community happiness is what Gillespie has called the principle of equal sharing.³⁶ This principle is based on the notion that the welfare of each individual should have an equal weight or that equality of material well being among individuals is beneficial. As a consequence, the principle of equal sharing calls for an income redistribution process that compensates for the inequalities that have resulted from an unequal distribution of inherited factors.

³⁵ W.I. Gillespie, (1972) Op.Cit. pp. 23.

³⁶ Ibid

Provided that the knowledge and ability exist for the removal of unequal inherited factors, Gillespie has concluded that:

the ethics of equal sharing requires more than equal sharing for some period of time in order to eliminate nature's inequalities (those that can be eliminated). The redistribution must be in the form of goods in kind (appropriate to the particular inequality), [and] if all inequalities are removed no further redistribution is required...Goods redistribution is called for since our idea of fairness is that all should be treated equally, and this calls for elimination of those inequalities that can be eliminated...³⁷

Furthermore, if for lack of knowledge or because of ethical reasons the inherited factors responsible for the unequal well - being of individuals cannot be removed, in order to compensate for the remaining factors of inequality a further redistribution process would be called for.

In sum, within the context of the ethical framework, the income redistribution process has been explained for reasons that demand alternatively: i) the compensation for an unequal distribution of inherited factors, ii) the equal satisfaction of unequal wants, iii) the need that income reflect exclusively individual efforts, iv) the maximization of the social utility or happiness, or v) the fairness of assigning the same weight to each individual's well - being.

So far as to the theoretical developments in the fields of income distribution and income redistribution. The third component of the theoretical context of incidence studies - the incidence theory itself - should now be addressed.

³⁷ W.I. Gillespie, (1972) Op.Cit. pp. 36

2.1.3 The Theory of Fiscal Incidence

Regardless of their statutory base, that is, their legal foundation, and no matter what the economic base upon which they are imposed may be, taxes must ultimately be paid by individuals, and not by conceptual or *de - jure* constructions - factors of production, companies, corporations or associations. Likewise, individuals are the ultimate recipients of the benefits generated by public expenditures, regardless of the conceptual targets they may be designed to reach. This interaction between taxes and public expenditures, generates an income redistribution process known as fiscal incidence. In effect, as Gillespie has noted, "the term fiscal incidence refers to the extent to which the public sector redistributes incomes among family units (or individuals)".³⁸

Gillespie has described the fiscal incidence process as follows:

"let us imagine that a private economy exists in which each family unit owns a mix of assets, including the capitalized value of its labor. The income flow from this collection of assets defines the economic position of one family unit compared with any other family unit at one point in time... . Let us further imagine that prior to time t, the family units were able to satisfy their individual consumption wants, but had no efficient method of satisfying their social wants, wants which have some measure of collective consumption aspects built into their nature.

At time t the family units, through some form of collective action, agree to create a government legally empowered to provide those goods and services necessary to satisfy their social wants and legally empowered to finance such public expenditures via compulsory taxation, borrowing, or such other means as may be considered appropriate. Within this context, the function of the government is to channel resources away from the production of private

³⁸ W.I. Gillespie (1980), op cit. pp. 8.

consumption goods into production of public goods that satisfy the social wants. The family units may also choose their government to alter the distribution of the economic position across the units - independent of any provision of public goods.

..

At some future time, say, $t+1$, we can expect that the economy will have adjusted to the introduction of (or emergence of) the public sector, and settle into a new equilibrium state. At time $t+1$, each family unit has experienced a change in the economic position, resulting from the combined effect of the benefits received from the goods and services provided through the government and the taxes paid to the government. It is this change in economic position that defines the theoretical content of the term fiscal incidence".³⁹

In the context of multiunit or multijurisdictional fiscal systems, the income redistribution process involves, in addition to the above, the transfer of taxes and benefits among jurisdictions.⁴⁰ The burden of the financing system may take the form of higher prices of goods sold from one jurisdiction to another or of discriminatory tariffs against imports, while the benefit system may take the form of lower prices and better quality of traded products, stimulated by the activities of the public sector. An important factor determining this jurisdictional transfer process is the proportion of trade between the parties. The dominance of one jurisdiction over another, for instance, will determine its ability of forward shifting local or national taxes.

Given this general framework how, more specifically, can the redistributive effects of taxes and public expenditure be determined? The theoretical work in this field has traditionally followed two separate streams, distinguishing between the incidence of

³⁹ W.I. Gillespie (1980), op cit. pp. 7 - 8.

⁴⁰ For a discussion of the principles of multiunit fiscal systems, see Richard A. Musgrave and Peggy B. Musgrave, Public Finance In Theory and Practice (New York: McGraw Hill Book Company, 1984) pp. 501 - 522.

taxes on the one hand, and the incidence of public expenditures on the other. As well, concerning the time framework, the character of the model and the way in which this may be used, distinctions between annual and lifetime incidence, static and dynamic incidence and implicit and explicit models, have also arisen. As will become evident below, the theory of tax incidence has reached a far more advanced stage than the theory of public expenditure incidence, regardless of the approach.

For reasons explained below, this thesis follows an annual and static incidence approach. The theoretical foundations of this approach, including both taxes and public expenditures, will be addressed hereafter. Next, to complement the view, the arguments in support of alternative approaches will be discussed.

2.1.3.1 Annual Tax Incidence Theory and the Harberger Model

As Break has noted, the theory of tax incidence is rooted in the seminal contribution by Rolph, Musgrave and Harberger.⁴¹ Rolph's work has been considered

⁴¹ George Break, "The Incidence and Economic Effects of Taxation", in The Economic of Public Finance (Washington D.C.: Brooking Institution, 1974), pp. 123. For an examination of the work by these precursors of tax incidence analysis see E. Earl R. Rolph, "A proposed revision of excise - tax theory", Journal of Political Economy, (Vol. 60, April 1952), pp. 102 - 117, "A theory of excise subsidies", American Economic Review (Vol. 42, September 1952), pp. 515 - 527, The Theory of Fiscal Economics (University of California Press, 1954), pp. 123 - 171; Richard A. Musgrave, "On incidence", Journal of Political Economy, (Vol. 61, August 1953), pp. 306 - 323, Teoria de la Hacienda Publica, (Madrid: Aguilar S.A. de Ediciones, 1969); part III, and Arnold C. Harberger, "The incidence of the Corporation Income Tax", Journal of Political Economy, (Vol. 70, June 1962), pp. 215 - 240.

instrumental for the stimulation of early theoretical research in this field. Musgrave, for his part, laid the basis for a rigorous analysis of the incidence of taxes. His distinction between the incidence on the uses of income side and the incidence on the sources of income side, as well as his clear separation between the concepts of absolute, differential, and budget incidence, remain central for the treatment of the subject.⁴² Harberger's most distinguished contribution refers to the development of a general equilibrium model of tax incidence analysis.

The Harberger model has become a fundamental tool of empirical research in the field of fiscal incidence. A substantial number of studies on this subject has relied on the results of this analytical instrument.⁴³ The Harberger model provides the theoretical basis for this thesis as well.

⁴² Incidence on the uses side of the account refers to tax changes that affect the spending activities of the economic units, while incidence on the sources side has to do with tax changes that affect their earnings. Absolute tax incidence examines the distributional effect of taxes while holding public expenditure constant. Differential tax incidence refers to the distributional effects of changes that result when one tax is substituted for another, so as to generate the same amount of revenue, while holding expenditures constant. Budget incidence considers the redistributive effects of tax and expenditures when both are allowed to change simultaneously. See, Musgrave and Musgrave, *Op. Cit.*, PP. 250 - 253.

⁴³ See for instance, Edgar Browning and William Johnson, The Distribution of the Tax Burden (Washington, D.C., American Enterprise Institute for Public Policy Research, 1979), E. Browning "The Burden of Taxation" Journal of Political Economy (Vol. 86, 1978) 649 - 71, Joseph Pechman, Who pay the Taxes? (Washington, D.C., The Brookings Institution, 1985), I.W. Gillespie The Redistribution of Income in Canada (Ottawa: Gage Publishing Limited, 1980), Morgan Reynolds and Eugene Smolensky, Public Expenditures Taxes and the Distribution of Income (New York: Academic Press, 1977), Frank Vermaeten, W.I. Gillespie and Arndt Vermaeten, "Tax Incidence in Canada" Canadian Tax Journal (Vol. 42, No.3, 1994) pp. 348 - 416, Vermaeten et al., Who Paid the Taxes in Canada 1951-1988 (Mimeo, November 1994) and G.C. Ruggeri, D. Van Wart and R. Howard "The Redistributive Impact of Taxes in Canada", Canadian Tax Journal, (Vol 42, No.2, 1994), pp. 417 - 51.

Originally designed for the study of the incidence of the corporation income tax, the Harberger model has been extended to assess the incidence of other taxes and tax expenditure combinations.⁴⁴ Let us examine the basic and original structure, the solutions and some of the implications for incidence analysis of this model.

*The Model's Structure*⁴⁵

Assume (a) the existence of two industries in the economy, employing two factors, K and L, and producing two goods, x and y. (b) The two industries make use of constant return production functions (homogeneous of the first degree) and factors K and L are paid returns, equivalent to the value of their marginal products. (c) Factors are fixed in supply and sufficient factor price flexibility prevails to ensure that they be fully employed. (d) There is complete factor mobility between industries.⁴⁶

⁴⁴ For an examination of extensions of the Harberger model see Charles E. McLure, Jr., "The Theory of Tax Incidence With Imperfect Factor Mobility", Finanzarchiv (Vol. 30, 1971), pp.27 - 48, "Tax Incidence, Macroeconomic Policy, and Absolute prices" Quarterly Journal of Economics, (Vol.84, May 1970), pp. 254 - 277, "General Equilibrium Incidence Analysis" Journal of Public Economics (Vol 4, 1975), pp. 125 - 161, "A Simplified Exposition of the Harberger Model" National Tax Journal (Vol. 28, No.1, March 1975), pp. 1 - 27, and Peter M. Mieskowski, "On the Theory of tax Incidence" Journal of Political Economy, (Vol. 75, June 1977), pp.250 - 262, and "Tax Incidence Theory: The Effect of Taxes on the Distribution of Income" Journal of Economic Literature, (Vol. 7, December 1969), pp.1103 - 1024.

⁴⁵ This section borrows generously from Harberger (1962) op.cit., McLure (1971) op.cit. and Mieskowski (1969) op.cit.

⁴⁶ See C.E., McLure (1971) for an exploration of the implications of incomplete factor mobility

For simplicity, (e) the initial prices of the goods X and Y and of factors L and K are assumed to be equal to unity. Demand for each product is normally dependent of relative prices and the income level of the buyers. However, (f) it is assumed that public spending just offsets the fall in private spending arising from any imposed tax, and that every group (including the government) spends the same proportion of income in taxed and untaxed products, so that the transfer of income from the private to the public sector has no income effect. Under these circumstances, (g) demand is limited to depend only on the relative price of goods x and y.

Further, let the elasticity of demand for good x be described by E , the factor elasticities of substitution in each industry by S_x and S_y , prices by P and taxes per unit of good or factor by T , each one with their corresponding subscripts.

The above assumptions lead to the following nine equations:

From assumptions e, f, g, differentiating function $x = f(P_x/P_y)$, dividing by x , and simplifying the expression yields

$$\frac{dx}{x} = E(dP_x - dP_y) \quad (1)$$

(Demand for x)

From assumptions a and b,

$$\frac{dx}{x} = f_L \frac{dL_x}{L_x} + f_K \frac{dK_x}{K_x} \quad (2)$$

(Supply of x)

where f_L and f_K are the initial shares of labor and capital, respectively, in the total cost of producing x .

Given assumption b and competitive conditions, the percentage change in the ratio in which the factors of production are used, will equal the elasticity of substitution between those factors, times the percentage change in the ratio of the their prices. that is.

$$\frac{d(K_x / L_x)}{(K_x / L_x)} = S_x \frac{d(P_{Kx} / P_{Lx})}{(P_K / P_L)}$$

$$\frac{d(K_y / L_y)}{(K_y / L_y)} = S_y \frac{d(P_{Ky} / P_{Ly})}{(P_K / P_L)}$$

From assumption e, these expressions can be simplified to.

$$\frac{dK_x}{K_x} - \frac{dL_x}{L_x} = S_x (dP_K - dP_L) \quad (3)$$

— — —

$$\frac{dK_y}{K_y} - \frac{dL_y}{L_y} = S_y (dP_K - dP_L) \quad (4)$$

From assumptions b and c,

$$dPx = f_L dP_L + f_K (dP_K + T) \quad (5)$$

$$dPy = g_L dP_L + g_K dP_K \quad (6)$$

where g_L and g_K are the initial shares of labor and capital, respectively, in the total cost of producing y ,

From assumption c,

$$dK_x = -dK_y \quad (7)$$

$$dL_x = -dL_y \quad (8)$$

There is the need for a numeraire, a price in terms of which other prices can be expressed, to close the system. For instance, Harberger (1962) used P_L in his original work, while McLure (1971) applied P_y , to produce a set of solutions under different factor mobility scenarios.

In order to examine an example of the predictions of the model, it is best to show Harberger's solution for the incidence of a tax on incorporated capital, using P_L , the untaxed factor, as the numeraire. In this case the final equation becomes:

$$P_L = 0 \quad (9)$$

Given the problem posed by Harberger, the desired solution should be given in terms of dP_K , the change in the after tax price of capital relative to the price of labor.

National income in terms of labor is given by $P_K K + P_L L + T K_x$. Thus, if dP_K remains unchanged, i.e., $dP_K = 0$, the burden of a tax on capital falls on both capital and labor, in proportion to their shares in national income. If, however, the return on all capital falls by an amount equivalent to the proceeds of the tax, i.e., $-dP_K K = T K_x$, capital bears the full burden of the tax, for the share of labor in total national income is not affected by the tax.

The solution of the model for dP_K , yields an expression that embraces a wide range of results, depending on the value of the parameters. Substituting equations 5 to 9 into equations 1 to 4, and using Cramer's rule to solve the simplified system yields the fundamental result obtained by Harberger:

$$dP_K = \frac{E f_K \left(\frac{K_x}{K_y} - \frac{L_x}{L_y} \right) + S_x \left(\frac{f_L K_x}{K_y} + \frac{f_K L_x}{L_y} \right)}{E (g_K - f_K) \left(\frac{K_x}{K_y} - \frac{L_x}{L_y} \right) - S_y - S_x \left(\frac{f_L K_x}{K_y} + \frac{f_K L_x}{L_y} \right)} \cdot T$$

This expression clearly shows that the value of dP_K depends on the magnitude of
 i) the elasticity of demand for x, the product of the taxed industry (E), ii) the factor

intensities in each industry (f_K, f_L, g_K, g_L), iii) the elasticities of substitution of capital for labor in both industries (S_x and S_y) and iv) the factor proportions ($K_x/K_y, L_x/L_y$).

Naturally, different values of these key parameters and alternative combinations of such values, would lead to a wide range of results for dP_k . A discussion of these possible results can be consulted in Harberger's work.⁴⁷

The Model's Contribution and Implications for Tax Incidence

In addition to the identification of the aforementioned key structural parameters that determine the change in relative prices, their interrelationship and hence the tax incidence process, the Harberger model and its subsequent extensions have led to several important conclusions. These conclusions have been very well summarized by McClure and Thirsk:

“[First] tax incidence is primarily a matter of changes in relative prices. That is, changes in relative factor rewards determine redistribution or incidence on the side of sources of income and changes in relative product prices incidence on the side of uses of income, independently of accompanying movements in overall price levels...

⁴⁷ Harberger used this solution to estimate the incidence of the corporate tax in the U.S. Using various assumptions for the elasticities of substitutions, he concluded that capital bears most of the tax burden. For solutions of the model for other unknowns using the same set of equations, and under a more ample range of factor mobility cases, see C. E. McClure, op.cit. (1971), op.cit. pp. 38 - 39.

Second, taxes on all uses of one factor or one use of an immobile factor are borne by owners of that factor and do not affect the allocation of resources. Taxes on only one use of a mobile factor generally do affect resource allocation. Moreover, flows of mobile factors result in the equalization of net factor rewards across industries and therefore in the sharing of tax burdens by all owners of a tax mobile factor... .

Third, general income or consumption taxes do not affect the allocation of resources and are borne in proportion to shares in national income or consumption. But partial excises affect the allocation of resources and relative prices. Both excises and partial factor taxes can generally be expected to affect both relative factor returns and relative product prices.

Fourth, as long as resource allocation is initially optimal, any tax that affects resource allocation reduces economic welfare. Excises reduce welfare by altering relative product prices and thereby inducing consumers not to buy (and producers not to produce) the optimal product mix.⁴⁸

To complement the above conclusions, it is interesting to note that an important result obtained by Mieszkowski (1969) is that the findings derived from competitive models are little affected by the introduction of monopoly elements.

Further, with the use of the model Mieszkowski (1967) has demonstrated the equivalence of taxes which Musgrave (1959) indicated to prevail under perfect competition, constant returns to scale and no savings. This equivalence has been explained by Break (1974) with the help of the following tax matrix, adapted from

⁴⁸ Charles McLure, Jr., and Wayne R. Thirsk Op. Cit. pp. 23 - 24

McLure (1971):

$$T_{XY} = T_{LK} = T_L + T_K \quad (a)$$

$$" \quad " \quad "$$

$$T_X = T_{XL} + T_{XK} \quad (b)$$

$$+ \quad + \quad +$$

$$T_Y = T_{YL} + T_{YK} \quad (c),$$

were T refers to taxes, X and Y the two consumer goods included in the model, and L and K the two production factors (labor and capital).

the first proposition [proposition (a)] ... is that, given the assumption of the [Harberger model] that the capital stock is constant (net saving equal zero), a tax on gross output or sales, T_{XY} , is equivalent to a tax on gross incomes, T_{LK} , each being borne in proportion to consumption or income which, by assumption are identical. Given this identity, knowledge of the incidence of a single commodity tax, say, T_X , makes it possible to derive the incidence of the other commodity tax, T_Y . Similarly, knowledge of the incidence of one of the factor taxes, say T_L on labor income, is sufficient to determine the incidence of the other factor tax T_K . Finally, the incidence of a tax on each factor used in producing a commodity is equivalent to an equal - rate tax on the commodity in question, as shown in the second and third rows in the matrix, and since a tax on one factor in each of its uses is equivalent to a general tax on the factor in question, as shown in the second and third columns of the matrix, knowledge of only one of the remaining "partial - partial" taxes is needed to complete the incidence analysis. For a complete picture of the tax incidence in the [extended Harberger model], then, it is necessary to study in detail only a tax on one commodity, a tax on one factor, and a tax on the uses of one factor in the production of one commodity.⁴⁹

⁴⁹ George Break, op.cit., pp 131 - 132

All of the above conclusions have been fundamental for the empirical investigation of tax incidence. In effect, the lessons of the model have permitted the design of alternative sets of assumptions on the redistributive impact of individual taxes, which in turn have facilitated the computation of tax incidence estimates for a number of country and regional tax systems.⁵⁰ As a matter of fact, the years after the appearance of the model have been clearly the most fruitful ones in the field of tax incidence analysis.⁵¹ As McLure has recognized,

...the Harberger model has been an extremely valuable contribution to the literature of economics in general and of public finance in particular. Suffice it to say that Arnold Harberger performed an invaluable service in cutting the Gordian knot that had effectively stymied economists attempting general equilibrium analysis of tax incidence. Once that knot was cut, it was possible for others to begin to extend the analysis in various directions...⁵²

In spite of the model's fruitfulness and significant contribution to the study of fiscal incidence, Break has noted that it has two notable weaknesses. First, it is designed to handle infinitesimal changes in taxes and of these changes upon other variables of the system. This is an important consideration to take into account, especially if the model is used not only to derive qualitative assumptions as in this thesis, but to directly compute the value of changes in the system resulting from the introduction of new taxes, that is, to obtain numerical solutions of the system.⁵³ Second, the model cannot analyze the effect

⁵⁰ See for instance E. Browning, M. op.cit, Reynolds and E. Smolensky, op.cit., F. Vermaeten and W. I. Gillespie, op.cit and J. Pechman, op.cit.

⁵¹ Charles McLure, Jr., Op. Cit. (1975), pp.159

⁵² Charles E. McLure, Jr., (1975), Op. Cit. p.159.

⁵³ See the model above.

of taxes on savings, investment and economic growth.⁵⁴ In other words, it is a system for the analysis of comparative statics results, where dynamic elements are ignored.

However, in the authoritative view of McLure, one of the extended model's most salient advocates and co - developers, these limitations do not undermine the validity of the model. While recognizing its qualifying factors, he has pointed out that the model may be used without apologies for the conclusions that are derived from it may hold, at least qualitatively, even if a more realistic set of assumptions on the economy are adopted.⁵⁵

This is a strong statement in support of the empirical work based on the Harberger model. But the confidence in the use of this approach and the resulting estimates, should not be interpreted as a dismissal of the limitations of the analysis herein adopted.⁵⁶

Summarizing, the extended Harberger model is the fundamental theoretical instrument upon which this thesis builds its set of fiscal incidence assumptions. It is important to stress the fact that the thesis uses only the qualitative implications of the model to derive a set of plausible assumptions. In other words, it is not the approach of the work to compute the approximate value of the above parameters in order to obtain quantitative measures of the model. The theory is used only as a guide to design the way in which both taxes and public expenditures are to be distributed, and alternative

⁵⁴ George Brake, op. cit. pp. 133 - 134

⁵⁵ Charles McLure, Jr "Tax Incidence, Macroeconomic policy, and Absolute Prices" Quarterly Journal of Economics, (Vol. 84, May 1970), pp. 255

⁵⁶ For alternative treatments to the tax incidence issue, see section 2.1.3.3

assumptions are introduced to test the sensitivity of the central case suggested by the model. The theory is evaluated in the context of the Costa Rican economy for the assumptions should respond adequately to this specific context. This is the essence of the implicit model approach.

Shah and Whalley (1991) have argued that a number of characteristics of developing countries, preclude a straightforward application of the Harberger model to study the incidence of fiscal systems in these countries.⁵⁷ According to these scholars, important among these characteristics are the existence of black markets, trade quotas, price controls, public enterprises, low tax compliance, high tax evasion, low coverage of income taxes, low importance of payroll taxes, important presence of foreign ownership and dominance of trade taxes.

The question arises, how do these characteristics apply to the Costa Rican case? First, informal markets can be considered important and have an impact on tax evasion. However, they actually introduce a high degree of flexibility to the economic system: economic units are very small, factor mobility is high and prices are fairly flexible. Second, price controls and quotas have been eliminated in the country. Third, the broad system of public enterprises has been dismantled. Today, the only important enterprises are the electric and telecommunications company, the national insurance company, the national oil refinery, and three banks. The latter four pay taxes as any private company.

⁵⁷ John Whalley and Anwar Shah, "The Redistributive Impact of Taxation in Developing Countries", in Tax Policy in Developing Countries, edited by Javad Khalilzadeh - Shirazi and Anwar Shah (Washington, D.C.: The World Bank, 1991), pp. 166 - 184

Fourth, low compliance and tax evasion appear certainly to be important. The model could be adapted to incorporate a parameter that takes into account this factor. However, it would be of little use for there is no information available in the country on this subject. Fifth, the coverage and importance of payroll taxes are not low but rather quite large in Costa Rica. Last, foreign ownership and international taxes are significant, but the model can cope with this characteristic by examining the implications of an open economy context.

In conclusion, taking into account the above comments, it would be desirable to adjust the predictions of the theory to incorporate, at least, the impact of tax evasion and the small size and openness of the Costa Rican economy. Other factors not mentioned above are imperfect factor mobility and the potential presence of monopolistic elements.

With respect to tax evasion, considering that there is absolutely no information on the magnitude of tax evasion in the country, as was explained in chapter 1, the issue is disregarded. However, the remaining elements will be effectively incorporated in the analysis. Therefore, the predictions of the theory will be adjusted to take into account the fact that the case under study is typically a small open economy and, when applicable, the analysis will consider the existence of possible factor rigidities. Concerning monopolistic elements, it has already been noted that an important result obtained by Mieszkowski (1969) is that the findings derived from competitive models are little affected by the introduction of these type of elements.

2.1.3.2 The Theory of the Incidence of Public Expenditure

Let us now turn our attention to the theory of the incidence of public expenditure. As has been said, unfortunately the theoretical development in this field has not been as extensive and fruitful as in the case of tax incidence analysis.

Tax incidence analysis in the context of the Harberger model assumes government spending policy to be neutral, that is, "that it merely replaces the private spending that does not occur because of tax - induced reductions in private incomes".⁵⁸ Expenditure incidence, however, is concerned with the distributional effects of non - neutral public expenditure decisions, in other words, with expenditure that does not have these private expenditure offsetting effects.

To be more specific, expenditure incidence deals with the question of how non - neutral government spending affects real income and relative prices. Once again, the Harberger model is useful to answer this question. Assuming, as before: the existence of two industries in the economy employing two factors, K and L, and producing two goods, X and Y, X capital intensive, constant return production functions, factor payments equivalent to the value of their marginal products, fixed factor supply, sufficient factor price flexibility to ensure that they be fully employed, perfect factor mobility between industries, public spending to counterbalance the fall in private spending arising from any

⁵⁸ Charles McLure and Wayne R. Thirsk, "A Simplified Exposition of the Harberger Model II: Expenditure Incidence" National Tax Journal (Vol. XXVIII, pp 194 - 207) p. 195.

imposed tax. McClure and Thirsk have analyzed the effects of a shift of demand by the public sector from good X to good Y, instead of following a neutral expenditure pattern, for the case of a tax on capital.⁵⁹ The results depend on the mobility of the factors, and are summarized in the paragraphs that follow.

In the context of complete factor mobility, on the sources side, the shift of government purchases toward the relatively labor intensive product (Y), raises the wage bill and reduces the returns to capital by the same amount. In other words, it involves "a pecuniary external economy for labor ..and an equal sized pecuniary external diseconomy for capitalists".⁶⁰ On the uses side, it bids up the relative price of the labor intensive product, so that consumers who spend large amounts of their income on this product lose - in this case, workers.

In the case of complete factor immobility, on the sources side, the shift of demand raises the returns to the factors employed in the sector benefited by the increased demand - in this case labor - and reduces the returns of the factors employed by the sector that produces the goods for which demand has declined - capital. This result is due to the fact that if factors are immobile, output in neither industry can be affected by the changes in demand. On the uses side, the price of the product experiencing an increased demand must rise. Similarly, the price of the goods for which demand falls must decline. Labor and capital will be affected by this price change in proportion to the shares of expenditure

⁵⁹ Ibid.

⁶⁰ Ibid., p. 198

in these products for each factor income. It is expected that “in total, because the changes in product prices are substantially greater than in the complete mobility case, the redistribution on the uses side more than nearly offsets that on the sources side”.⁶¹

If only one factor is immobile, on the sources side, changes in the price of the mobile factor are similar to those in the perfect mobility case and changes in the price of the immobile factor as in the complete immobility case. On the uses side, changes in the product prices are intermediate, as compared with the changes in the two extreme cases.

If the government uses the proceeds of the taxes to purchase more of one factor instead of more of one product, at the outset the returns to the factor experiencing greater demand will increase. More specific results depend on the mobility of the factors. Assume that the government hires more labor. In the case of complete factor mobility, aside from the increase in the price of labor, two results are of interest. First, the production of Y, the labor intensive product, experiences only a small drop while the production of X declines significantly, as a result of the increased demand for Y induced by the growth of the real income of workers. Second, capital is reallocated from sector X to sector Y in order to meet the increased demand for Y. As has been said, on the sources side the returns to labor increases. On the uses side, the higher price of labor and the greater demand for Y raises the price of this product, in detriment to the income of workers.

⁶¹ Ibid., p.200

Assuming complete factor immobility between industries but allowing for factor mobility from the private to the public sector, and particularly from industry Y, the hiring of workers by the government increases the returns to the workers remaining in this industry, for their supply declines. As in the previous case of complete factor immobility, the returns to both fixed labor and capital in industry X decline. In balance, on the sources side, labor benefits and capital are harmed by this policy. However, since Y is labor intensive, this policy bids up the price of Y. Likewise, because Y absorbs a relatively larger proportion of the worker's income, the rise in the real income of workers also increases the demand for Y and its price. Therefore, on the uses side, all workers lose.

The discussion has thus far dealt with the public expenditure incidence implications derived from the Harberger Model. Let us now consider the more specific theoretical and methodological problem of allocating the benefits of public expenditure.

The Allocation of the Benefits of Public Expenditures

Public expenditures are normally classified into three groups: transfers, mixed goods or specific goods and pure public goods. Within this context, the treatment of

transfers offers the least difficulties for they can be conceived as negative taxes. In other words, they can be analyzed within the theoretical framework, above presented.⁶²

The category of specific public goods and services comprises semi - public goods that are characterized by strong externalities but can be subject to exclusion (such as education and health services) and private goods supplied by the public sector, entirely subject to exclusion but which provision is done by the government due to historical or other reasons, e.g., postal service. Because of the largely private nature of these goods and services, from the theoretical and methodological point of view, the benefits of public expenditure in these areas have been traditionally hypothesized to be received by those who have direct access to them. There are basically no major theoretical complications in the treatment of these types of goods and services.

The difficulties and controversies arise with the distribution of benefits produced by expenditures for the provision of pure public goods and services. For long, scholars have chosen to distribute the benefits of this sort of expenditure, again, by resorting to proxies that, in the informed and educated judgment of the analyst, best reflect the actual distribution of benefits. However, in their seminal contribution, Aaron and McGuire

⁶² This assertion must be qualified. In fact, as B.G. Dahlby and W. I. Gillespie have noted, the transfer system contains an element of altruism and is guided by motivations such as the desire for an income insurance plan. This means that allocating transfers to the direct recipients may overstate the benefits that the recipients actually obtain, for this procedure fails to recognize the benefits enjoyed by the donors. However, in the absence of information on the motivations of the donors or contributors of the transfer system, analysts have little choice but to impute the benefits directly to the recipients. See B.G. Dahlby "The Incidence of Government Expenditures and Taxes in Canada: A Survey", in Income Distribution and Economic Security in Canada, Francois Vailancourt, editor (Toronto: University of Toronto Press, 1985) pp. 128. and W. I. Gillespie, The Redistribution of Income in Canada, op. cit. pp. 82 - 85.

severely attacked this approach and proposed an alternative theoretical elaboration and methodology for measuring the benefit of government expenditures and pure public goods.⁶³

The essence of Aaron and McGuire's theoretical argument is discussed below. The specific methodological implications of this argument shall be examined in chapter five.

***The Distribution of the Benefits of Pure Public Goods: The
Aaron and McGuire Contribution***

Consider the utility function

$$U_i = f(Y_i) + g(P), \quad (1)$$

where Y is the value of private goods consumed by household i and P is the total physical quantity of public goods. Assume the utility obtained from the consumption of private goods is independent of the utility generated by public goods and that all utility functions are identical.

⁶³ Henry Aaron and Martin McGuire "Public Goods and Income Distribution" Econometrica, (Vol. 38, No. 6, November, 1970) pp. 907-921. See also, Shlomo Maital, "Public Goods and Income Distribution: Some Further Results" Econometrica, (Vol 41, No. 3, May 1973), pp. 561-568.

Hence, for any two households a and b,

$$MRS^a/MRS^b = (MU_p^a/MU_Y^a) / (MU_p^b/MU_Y^b) \quad (2), \text{ and}$$

$$MU_p^a = MU_p^b \quad (3)$$

Substituting (3) into (2)

$$MRS^a/MRS^b = MU_Y^b/MU_Y^a \quad (4)$$

which means that

$$MRS^a * MU_Y^a = MRS^b * MU_Y^b \quad (5)$$

or, for the general case,

$$MRS^a * MU_Y^a = MRS^b * MU_Y^b = \dots MRS^i * MU_Y^i = k, \text{ a constant } (6)$$

Assume, further, that P is efficiently produced ($\sum MRS^i = MC = \sum t^i = t$, where t is the tax) and that each household is imposed with a benefit tax equivalent to its

marginal rate of substitution ($t^i = MRS^i$, i.e. Lindahl type pricing). Hence, the proportion of public good corresponding to each household is

$$t^i P = MRS^i P \quad (7)$$

Multiplying and dividing by $\sum MRS^i$ and using (6),

$$t^i P = t^i P MRS^i P / \sum MRS^i = tP (k/MU^i_Y / \sum k/MU^i_Y) = tP (1/MU^i_Y / \sum 1/MU^i_Y) \quad (8)$$

where tP is the total tax collections. Setting $\sum \frac{1}{MU^i_Y} = 1$

$$t^i P = tP / MU^i_Y \quad (9)$$

Define Y_p as total expenditures on (i.e., the value of) public goods, equal to tP , total tax collections. If a schedule of MU^i_Y is specified, the proportion of expenditures on public goods corresponding to each household ($Y^a_p, Y^b_p, \dots$), can therefore be estimated as

$$Y^i_p = Y_p / MU^i_Y \quad (10)$$

which is the fundamental result obtained by Aaron and McGuire. In other words, "to each household should be imputed a fraction of the total value of the public good, proportional to the reciprocal of its marginal utility of private good expenditure"⁶⁴

Gillespie has questioned this result on two accounts.⁶⁵ First, if the usual assumption that marginal utility declines as income increases is applied, equation (6) above would indicate that the marginal rate of substitution must increase sufficiently as income rises to compensate for the drop in the marginal utility. This, he argues, is a result of dubious economic content for it suggests that households experiencing income increases derive increasing benefits from the consumption of a constant quantity - and therefore a constant marginal utility - of public goods.

Second, the conclusions strongly depend on the assumption of a declining marginal utility schedule. If alternative schedules are assumed, which is not unreasonable, the results lose their precision and become inconclusive.

Another strong attack to this approach comes from Geoffrey Brennan.⁶⁶ In his opinion, the information requirements of this technique are extremely demanding, the case being that "given the predominant ignorance of the MRS [in equation 10 above], one might reasonably despair of ever being able to say much about the true distribution of total income".⁶⁷

⁶⁴ Aaron and McGuire, op.cit p. 910.

⁶⁵ Gillespie (1980) op. cit. pp. 106 - 108

⁶⁶ See Geoffrey Brennan, " The Distributional Implications of Public Goods", Econometrica, (Vol. 44, No.2, March, 1976) pp. 391 - 399.

⁶⁷ Ibid, p.397

Further, the analysis involves a direct attack on the notion of horizontal equity, for if Lindahl pricing is used to determine taxes, individuals with equal income but different tastes would end up paying different amounts.

Third, the production of a public good in association with Lindahl taxation implies a distribution of the gains from trade, which is very different from the one that would prevail under the production of an equivalent private good with efficient market pricing (equal price to all consumers). In other words, the use of the Lindahl pricing mechanism is not by any means distributionally neutral as Aaron and McGuire assume in their work. In Brennan's words, "since the introduction of a private good at the same price to all leaves the income distribution unchanged, this observation is sufficient to cast some doubt on the distributional neutrality of Lindahl pricing in the public goods context".⁶⁸

Finally, and most importantly, for its implications regarding this thesis, Brennan shows that the equal - allocation - per - family rule is the simplest and most satisfactory approach for distributing the benefits of public expenditure. As he puts it, if the total utility gains for both private and public goods production were known, to estimate the correct distribution of public goods would be possible; but this not being the case, i.e., in the realistic scenario of information constraints, the allocation should be made on the basis of the more modest terms of income equivalents.⁶⁹

⁶⁸ Ibid. p. 394

⁶⁹ The publication of this work opened a debate between Brennan and Aaron and McGuire. However, far from bringing the controversy to an end, this debate reinforced it. See Henry Aaron and Martin McGuire. "Reply to Geoffrey Brennan. "The

To sum up the discussion with respect to the allocation of pure public goods, the Aaron and McGuire analysis attempts to introduce a more rational way of imputing the benefits of this type of public goods, instead of the simple use of the educated judgment of the analyst. However, the results of this theoretical elaboration are by no means conclusive. Strong doubts arise with respect to the assumptions and their implications, the distributional neutrality of the approach and the possibility of obtaining the required information to apply the resulting method of distribution. Under these circumstances, the traditional proxy - method of distribution of the benefits of pure public goods recovers validity.

2.1.3.3 Alternative Approaches to Fiscal Incidence Analysis: Computed General Equilibrium models, Lifetime incidence and Dynamic Incidence

Before concluding this section on the theory of fiscal incidence, it is worthwhile to examine the arguments that have been given in support of alternative approaches to the study of the impact of tax and expenditure policies on the distribution of income.

Distributional Implications of Public Goods" Econometrica, (Vol. 44, No.2, March, 1976) pp. 401 - 404 and Geoffrey Brennan, " Public Goods and Income Distribution: A Rejoinder to the Aaron and McGuire Reply", Econometrica, (Vol. 44, No.2, March, 1976) pp. 405 - 407

Some scholars have argued that tax incidence calculations should be undertaken on the basis of explicit general equilibrium models.⁷⁰ As previously noted, others still have indicated that analyses of this sort should be carried out within a lifetime perspective.⁷¹ This, in turn, brings up the more general topic of the study of dynamic incidence.⁷²

The argument for the former is that the computation of a general equilibrium model has the advantage that the specification of the model and its parameters is made explicit, which permits a better identification and control of the limitations entailed by the approach. However, this argument is not very convincing for as major advocates of the use of computational general equilibrium models have recognized, the problem is that

⁷⁰ See for instance John Shoven and John Whalley "Applied General Equilibrium models of Taxation and International Trade: An Introduction and Survey", Journal of Economic Literature (Vol 22, 1984) pp. 1007 - 1051 and John Whalley and Anwar Shah, "The Redistributive Impact of Taxation in Developing Countries", in Tax Policy in Developing Countries, edited by Javad Khalilzadeh - Shirazi and Anwar Shah (Washington, D.C.: The World Bank, 1991), pp. 169. For applications of explicit equilibrium models to explore the redistributional implications of the tax system, see John Piggott and John Whalley Applied General Equilibrium Analysis: An Application to UK Tax Policy, (Cambridge: Cambridge University Press, 1985), and Ramon L. Clarete, "A General Equilibrium Analysis of the Tax Burden and Institutional Distortions in the Philippines" in Tax Policy in Developing Countries, edited by Javad Khalilzadeh - Shirazi and Anwar Shah (Washington, D.C.: The World Bank, 1991) pp. 188 - 200.

⁷¹ See, for instance A.M. Polinski, "A Note on the Measurement of Incidence" Public Finance Quarterly (Vol. 1, No.2, April 1973) pp. 219 - 231, John Whalley "Regression or Progression: the Taxing Question of Incidence Analysis", American Economic Review (Vol. 71, Sept. 1981) pp 677 - 691., James Davies, France St - Hilaire, John Whalley "Some calculations of Lifetime Tax Incidence" American Economic Review (Vol 74, 1984), pp.633 - 649 and D. Fullerton and D. L. Rogers Who Bears the Lifetime Tax Burden? (Washington: The Brookings Institution, 1993)

⁷² It has been said on repeated occasions that the choice has been to develop this thesis upon the basis of the conclusions derived from the extended Harberger model, and to produce annual incidence estimates. Therefore, it is beyond the scope of this work to elaborate on the theoretical details of the alternative, general equilibrium, lifetime and dynamic incidence approaches to the problem.

there are many forms of general equilibrium models and the literature does not give solid ground to choose the parameter estimates.⁷³ As a consequence, the “arbitrariness of shifting assumptions is thus to some degree replaced by the arbitrariness of both model form and parameter values”.⁷⁴

On the other hand, lifetime incidence analysis has been inspired by the long - horizon individual economic - optimization concept, which has been proposed by lifetime consumption and permanent income theories. The advocates of lifetime incidence analysis have focused on two aspects: i) the measurement of the well - being of individuals, and ii) the methodological differences between the lifetime and the annual incidence approaches and, hence, the discrepancy between the results generated by the two approaches.

With respect to the first, it has been observed that the lifetime income of individuals tend to rise with age at the early stages and diminish near retirement.⁷⁵ Particularly, Polinsky has noted that a given structure of taxes and benefits of public expenditures involves three types of redistributive effects: it redistributes current income between different people, lifetime income between different individuals, and lifetime income between different stages of an individual's life.⁷⁶ Under these circumstances, he

⁷³ See John Whalley and Anwar Shah, "The Redistributive Impact of Taxation in Developing Countries", in Tax Policy in Developing Countries, edited by Javad Khalilzadeh - Shirazi and Anwar Shah (Washington, D.C.: The World Bank, 1991), pp. 169.

⁷⁴ Ibid.

⁷⁵ Sahota, o.cit., pp. 25

⁷⁶ Polinsky , op. cit, pp. 230

contends that the use of an annual measure of incidence not only fails to distinguish between these three types of effects but also may be misleading about the last two - except for the rare situation that income of every individual was constant over time.

Concerning methodological differences, Whalley argues that "capital income, a key component in annual incidence calculations, is not part of lifetime resources. ..[thus], it does not exist, does not bear the burden of taxes, and is not part of the lifetime income base".⁷⁷ Similarly, he indicates that the periodicity of certain taxes is variable in time. For instance "taxes on labor income are paid until retirement whereas taxes on consumption are paid until death, and [therefore] the relative weights of taxes that appear in annual incidence calculations need not to be the same in lifetime incidence calculations".⁷⁸ In addition Davies, St - Hilaire and Whalley have observed that income from social security programs and other income support programs, tend to be more equally distributed when examined on lifetime rather than annual basis.⁷⁹ Likewise, they have indicated that the weights of consumption taxes vary according to the age of economic units and, as a consequence, "the profile of consumption as a proportion of income will differ considerably between lifetime and annual data"⁸⁰

In response to the call for the use of a lifetime incidence framework, Block and Shillington (1994) have argued in the first place that, although individuals take into

⁷⁷ J. Whalley, op. cit. , pp. 674

⁷⁸ J. Whalley, op.cit., pp. 675

⁷⁹ Davies, St - Hilaire, and Wahlley, op. cit.

⁸⁰ Davies et al.. op. cit . pp. 636

account the long term implications of their decisions, it is not clear that this long - term necessarily refers to a lifetime horizon.⁸¹ In the second place, that the longer term horizon can only be contemplated with a high degree of uncertainty regarding future income, employment, sustainability of contracts and government policies, for instance. Uncertainty is such that even financial markets are unable to accommodate to extended time planning horizons.

Under the above circumstances, these authors have pointed out that,

“ Lifetime incidence estimates assume a policy environment that does not in fact exist. First and foremost, the tax system itself is not fixed. ...Second the collection of services that individuals may receive from government at various times, and that affect their incomes, is certainly not fixed. Third, most other public programs are structured in frameworks much shorter than lifetimes. ... Finally, annual cycles are the standard horizons for most public and private sector transactions, including such things as tax administration, labor agreements, and other contracts”⁸²

Block and Shillington conclude that,

“ short term positions ...are central to individual decisions and to perceptions of well - being. Therefore, annual incidence measures are valid estimates of tax distributions and more relevant to households than lifetime measures”⁸³

Along the same line of thought, Barthold (1993) has indicated that lifetime incidence analysis is not viable for policy makers.⁸⁴ Policy makers reject this approach.

⁸¹ Sheila Block and Richard Shillington, “Incidence of Taxes in Ontario in 1991”, in Allan M. Maslove (ed.), Taxation and Distribution of Income, Research Studies of the Fair Tax Commission (Toronto: University of Toronto Press, in co - operation with the Fair Tax Commission of The Government of Ontario, 1994), pp. 7 - 8

⁸² Ibid.

⁸³ Ibid

both because it is incomprehensible and because it is far from political reality. While recognizing that individual circumstances change over time “politicians believe that people tend to vote based on their annual situation rather than their permanent situation”.⁸⁵ Further, the policy makers’ decision horizon is strictly associated with the time framework of electoral and budget cycles. If they see that changes are to occur within a year’s time, they will regard the measurement of lifetime fiscal incidence as irrelevant.

Moreover, from the methodological point of view, the application of the lifetime incidence approach requires the use of the stringent assumption that “policies once enacted are maintained forever” which, as indicated, is denied by the political process.⁸⁶ The change of policies in time entail changes in the lifetime income profiles. If income projections do not take into account these changes, the measures of lifetime incidence will be imprecise, not only because of mistaken classifications of the income recipients but also because the burden of taxes would be calculated on the basis of incorrect income measures.

In addition, there is the problem of defining the unit of analysis, i.e., the concept of family. Given the multi - generational process of wealth transfer implied by the lifetime incidence approach, families are also supposed to be multi - generational, but at

⁸⁴ Thomas A. Barthold, “How Should we Measure Distribution”, National Tax Journal, (Vol. XLVI, No. 3, September, 1993), pp. 292 - 299

⁸⁵ Ibid.

⁸⁶ Ibid.

some point they have to be divided into minor units. However, it is difficult establish under which circumstances and at which point this subdivision is to occur.⁸⁷

Finally, from a different angle, while accepting the desirability of a lifetime approach. Hubbard (1993) has indicated that the use of this approach in performing distributional analysis is incompatible with the use of short term horizons in tax revenue estimation processes. Therefore, the challenge is to develop an approach that, like lifetime incidence calculations, is not sensitive to the cyclical behavior of tax payments, but is based on a short time horizon.⁸⁸

In sum, while lifetime incidence analysis is not openly rejected on theoretical grounds, it surely is, upon practical grounds, policy relevance and methodological basis. Perhaps, it is more reasonable to conclude with Ruggeri et.al. (1996) that the two approaches - annual and lifetime - are complementary and address different questions with respect to the distributional effect of fiscal policies. Both are expected to differ with respect to data requirements, methodologies, and interpretation of results.⁸⁹

Lifetime incidence analysis is intimately connected with a more general problem: the dynamic incidence problem. Annual fiscal incidence is based, as has been seen, on a general equilibrium model, designed to produced comparative static results. Contrary to

⁸⁷ Ibid.

⁸⁸ R.G.Hubbard, "On the Use of Distribution Tables in the Tax Policy Process". National Tax Journal, (Vol. XLVI, No.4, December 1993)

⁸⁹ Ruggeri et.al., op.cit., pp.19

this, the essence of dynamic incidence models is the analysis of growth and savings effects of tax and expenditure policies⁹⁰.

As Mieszkowski has noted, there is no single approach to dynamic incidence. Investigations have referred to the study of long - run factor shares, the per - capita wage rate, and the long run effect of taxes on the rate return on capital. "The variations stem from the fact that in the long run taxes not only have an effect on the distribution of income, but may also have a pronounced effect on the size of the total income"⁹¹ Thus, the magnitude of the long - run tax and expenditures shifting depends on the long run behavior of saving, investment, labor force, and relative prices. Because of this, the one period impact of taxes and expenditures can be different from the long - run results.⁹²

For instance, in his seminal contribution on dynamic incidence, Dosser (1961) noted that a progressive tax system can become regressive if the rate of change of income varies among different groups.⁹³ This "raised the question of whether tax liabilities should be based at least in part on rates of growth of income, rather than just on absolute level, and whether certain types of tax systems had good automatic redistributive

⁹⁰ P. Mieszkowski, op.cit. , pp. 1113

⁹¹ Ibid

⁹² See for instance L. Kotlikoff and L. Summers, " Tax Incidence" in Alan J. Auerbach and Martin Feldstein (ed.) Handbook of Public Economics (Amsterdam: Elsevier Science Publishers B.V., Vol. II, 1987), pp. 1070 - 1088, A. B. Atkinson and J. E. Stiglitz, Lectures on Public Economics (London: McGraw - Hill , 1980), pp. 227 - 249, and R.W. Boadway and D. E. Wildasin, Public Sector Economics (Boston: Little, Brown and Company, 1984), pp. 377 - 382.

⁹³ D. Dosser, "Tax Incidence and Growth", in Economic Journal (Vol 73, sept 1961) pp. 547 - 553.

features”⁹⁴ Also, studying the long - run effects of a corporate profit tax, Krzyzaniak (1966, 1968, 1969) concluded that the substitution of a tax of this sort for a wage tax, leads to a significant absolute and relative reduction in capital formation, and that as a result, the long - run burden of the tax increases substantially, with labor ending up absorbing part of it.⁹⁵ Further, Feldstein (1974) has noted that the elasticity of labor supply does not affect the long run incidence of a labor income tax and that this incidence depends only on the effects of the tax on capital intensity.⁹⁶ In addition, referring to intergenerational redistribution, Kotlikoff and Summers (1987) have indicated that several tax and expenditure policies redistribute resources from one generation to another, and can have an impact on the time path of the factor rates of return and redistributes income across generations.⁹⁷

These examples illustrate the basic point of dynamic incidence analysis: tax and expenditure policies have an effect on the time path and long run equilibrium position of key variables determining the patterns of incidence, such as income, factor supplies, relative factor returns, relative prices and production technologies. The static general equilibrium framework is certainly not designed to capture these effects.

⁹⁴ Mieskowski, op.cit. pp. 1113

⁹⁵ M. Krzyzaniak, (ed), Effects of the Corporation Income Tax, (Detroit: Johns Hopkins, 1966), “Long - Run Burden of a General Tax on Profits in a Neo - Classical World”, Public Finance (No. 22, 1967) pp. 473 - 91. See also Mieszkowsky, op.cit pp. 1113 - 1116

⁹⁶ M. Feldstein, “Incidence of a Capital Income Tax in a Growing Economy with Variable Savings Rates, Review of Economic Studies (No. 41, 1974) pp. 505 - 513. See L.Kotlikoff and L.H Summers, op.cit., pp. 1074

⁹⁷ L. Kotlikoff and L.H. Summers, op.cit. pp. 1077.

Although attractive, dynamic incidence is the general theoretical framework that embraces lifetime incidence analysis. For this reason, when judging the potential benefits of the use of dynamic incidence analysis in empirical studies, as compared with the more limited static general equilibrium approach, the above comments regarding the policy relevance, methodological complexities and interpretation of lifetime incidence analysis, should again be borne in mind.

Summary of Section 2.1

In conclusion, the study of the fiscal incidence process makes use of a wide theoretical framework which encompasses three fundamental sources of reference: the theory of personal income distribution, the theory of income redistribution and the theory of fiscal incidence itself. The first incorporates the multiple explanations of the forces that determine the allocation of income among the agents that participate in the economic process. The second attempts to explain why and how this original allocation of income is re - composed to attend to moral, social or political reasons. The third provides the bases for the development of methodological instruments capable of analyzing the final effects of taxes and public expenditures upon this income distribution structure.

Regarding this latter source of reference, the extended Harberger model has become the fundamental theoretical instrument for the empirical treatment of the impact

of taxes and public expenditures. In spite the fruitfulness of this analytical instrument, three major issues continue to be the subject of theoretical controversy in this field: the time framework within which the analysis of fiscal incidence should be carried out - annual or lifetime - . the nature of the general equilibrium model to be use in the analysis - implicit or explicit, static or dynamic - and the distribution of the benefits of pure public goods.

2.2 Theoretical Scope and Limitations of this Thesis

The general theoretical framework associated with the investigation of the fiscal incidence process has been presented. Before proceeding with the exposition of the methodological aspects derived from this framework, it is necessary to specify the limits to the scope of this thesis.

In the first place, this is an empirical study as opposed to a theoretical work. It does not attempt to develop a new theory or to construct or test a variation of any existing one. Rather it draws on the available stock of knowledge on the incidence of taxes and public expenditures, in order to produce new evidence on the impact of the public budget upon the distribution of income in Costa Rica.

Moreover, a process explained by one or by a combination of the theories of personal income distribution and income redistribution theories presented above might have originated the structure of personal income distribution in Costa Rica, but for the purpose of this study, the only material fact of interest is the structure itself, as measured by a recent national survey undertaken by government authorities. This structure is taken as a given input and serves as the point of reference for the estimates of the incidence of taxes and public expenditure here contained. The theoretical framework presented above may serve to help find explanations to the original income distribution and the resulting redistribution process. However, this is not the focal point or the main orientation of the thesis.

Despite all of the above, the thesis modestly contributes to the study of the distribution of income in Costa Rica, by presenting and evaluating the income structure by deciles and for alternative income concepts. However, it is recognized that further research on the origins of this size distribution of income is necessary. Such avenues of inquiry would certainly contribute to the enrichment of this work.

In the second place, in concurrence with the practice generally adopted in the literature, this study uses the implicit general equilibrium model approach to empirical estimation as opposed to the explicitly calculated general equilibrium model approach. This is done with no apologies, for as has been seen, the latter approach has not proven to be definitely superior to the former.

Granted, the computation of a general equilibrium model has the advantage that the specification of the model and the value of its parameters are made explicit. However, as was noted above, the problem is that there are many forms of general equilibrium models and the literature does not give solid ground to choose the appropriate parameter estimates.⁹⁸ As a consequence, with the use of computable models, the application of the researcher's knowledge and expertise to define the shifting assumptions is simply replaced by a set of arbitrary decisions regarding the value of some parameters.⁹⁹ Because of this I consider it quite satisfactory to use the implicit model approach to perform the estimates presented in the study, which by no means indicates that its limitations are being ignored.

It is important to stress the fact that basic thrust of the method is to use the theory as a rational guide to design a set of plausible assumptions. This guidance requires both knowledge of the context of study and the use of a range of alternative sets of assumptions to provide a degree of sensitivity to the analysis. The method is theoretically acceptable and has been well established as many studies have shown, e.g., Gillespie (1980), Johnson (1968), Dodge (1975), Pechman and Okner (1974), Pechman (1985), Musgrave Case and Leonard (1974), Reynolds and Smolensky (1977), Block and Shillington (1994), Vermaeten, Gillespie and Vermaeten (1994 and 1995), and others.

⁹⁸ John Whalley and Anwar Shah, "The Redistributive Impact of Taxation in Developing Countries", in Tax Policy in Developing Countries, edited by Javad Khalilzadeh - Shirazi and Anwar Shah (Washington, D.C.: The World Bank, 1991), pp. 169.

⁹⁹ Ibid.

More importantly, the results are relatively easy to interpret, this being from policy grounds, one of its most attractive characteristics. In addition, both from the policy and academic point of view, the use of this method has the advantage that the results presented in this study are comparable with those of many others that like the above mentioned, have adopted the same methodological approach.

In the third place, this is an annual as opposed to a lifetime or dynamic incidence study. Despite an original intention to produce a set of complementary lifetime incidence estimates, the insufficient theoretical development on the subject, as well as the technical difficulties confronted and the inadequate availability of information, proved to be insurmountable obstacles that made this exploratory route intransitable and inconvenient. In this sense, we must concur with F. Vermaeten, W. I. Gillespie and A. Vermaeten, when they assert that “... the absence of accurate data on lifetime basis, and the complexity of modeling a lifetime family, ...rule out... any meaningful attempt to measure lifetime incidence”.¹⁰⁰

To this, the doubts regarding the policy relevance of such an analysis must be added. As was discussed above, the actions of policy makers are constrained by a very limited time framework, in the sense that in order to maintain their positions of political power their decisions should be able to produce results in the short run. In the long run, they will all be politically dead, to paraphrase Keynes's verdict. Because of this, it has

¹⁰⁰ F. Vermaeten, W. I. Gillespie and A. Vermaeten, “Tax Incidence in Canada” in Canadian Tax Journal (Vol 42, No. 2, 1994) pp 355.

been argued that it may be difficult that - beyond their academic interest - the results of a study on the lifetime implications of their actions have an impact on the decision making process.

As F. Vermaeten, W. I. Gillespie and A. Vermaeten have concluded,

“Tax incidence on a current or an annual basis is more relevant for both taxpayers and policy makers. Where tax incidence studies are of interest to taxpayers, it is generally because the findings of such studies help them to assess their current economic capacity to pay taxes and to compare their current tax burdens with those of other families. Policy makers and politicians are interested in whether the existing tax system is fair and efficient, and if not, what tax changes or major tax reforms would result in a fairer and more efficient tax system in a reasonably short period of time.”¹⁰¹

In light of the above comments, considering the discussion presented in the preceding section, with respect to the policy relevance, the methodological difficulties and the theoretical grounds of dynamic and lifetime incidence analysis, and taking into account the policy orientation and interest of this work, again. I am quite content to produce the set of annual estimates herewith presented. I trust that the modest insight they bring to the subject, have an effect on policy makers and stimulate further research on these matters in Costa Rica.

¹⁰¹ Ibid

Summary of Section 2.2

In sum, this is an empirical and not a theoretical work. It is based on the general equilibrium implicit model approach, rather than on the explicit general equilibrium model approach and it produces annual and not lifetime or dynamic incidence estimates. Other topics discussed in the theoretical framework such as the interrelationship between income distribution theories and empirical evidence, the rationale of the income redistribution process, and government actions to define and control property rights, certainly open up a vast field for further research in Costa Rica, that if pursued shall enrich the findings of this thesis.

2.3 Methodological Approach: Praxis and Limitations

In previous sections, the underlying theoretical framework of fiscal incidence analysis was examined. Likewise, in the light of this wide theoretical body of reference, the limits to the scope and more modest characteristics of this work were set forth. The specific empirical methods - derived from this more limited theoretical framework - to be used in the study should now be presented.

The general procedure to produce a set of fiscal incidence estimates consists of four stages: i) the estimation of a pre - fisc size distribution of income, ii) the estimation of the

tax payments made by individuals and its subtraction from the size distribution of income, iii) the estimation of the income equivalent of benefits entailed by public expenditure and its addition to the size distribution of income, and iv) the comparison and analysis of the resulting post - fisc size distribution of income vis - à - vis the original pre - fisc distribution, complemented with the formulation of a set of incidence indicators. This general procedure can be summarized in the following matrix form:¹⁰²

$$y_A = y_B \cdot T \cdot r + E \cdot g \quad (1)$$

Where: y_A and y_B are vectors of size $n \times 1$ representing, respectively, the post and pre - fisc size distribution of income, separated into n income classes,

T is a matrix of size $n \times h$, representing the proportional distributors of selected tax payment categories, so that each column sums to one. These distributors indicate the percentage of each tax category borne by each income class,

r is a vector size $h \times 1$ representing a set of h selected tax payment categories, such as sales taxes, property taxes and income taxes. The elements of r are total taxes collected within each category,

¹⁰² For a related expression see M. Reynolds and E. Smolensky. Public Expenditure, Taxes and the Distribution of Income (London: Academic Press, 1977), p. 27

E is a matrix of size $n \times k$, representing the proportional distributors of selected public expenditure categories, so that each column sums to one. These distributors indicate the percentage of each expenditure category corresponding to each income class, and

g is a vector of size $k \times 1$ representing a set of k selected public expenditure categories, such as expenditures on education, social security, and health care. The elements of g are total expenditures on each category,

In expanded form,

$$\begin{bmatrix} y_{A1} \\ y_{A2} \\ y_{A3} \\ \vdots \\ y_{An} \end{bmatrix} = \begin{bmatrix} y_{B1} \\ y_{B2} \\ y_{B3} \\ \vdots \\ y_{Bn} \end{bmatrix} - \begin{bmatrix} t_{11} & t_{12} & \dots & t_{1h} \\ t_{21} & t_{22} & \dots & t_{2h} \\ \vdots & \vdots & \dots & \vdots \\ \vdots & \vdots & \dots & \vdots \\ t_{n1} & \dots & \dots & t_{nh} \end{bmatrix} \begin{bmatrix} r_1 \\ r_2 \\ \vdots \\ r_h \end{bmatrix} + \begin{bmatrix} e_{11} & e_{12} & \dots & e_{1k} \\ e_{21} & e_{22} & \dots & e_{2k} \\ \vdots & \vdots & \dots & \vdots \\ \vdots & \vdots & \dots & \vdots \\ e_{n1} & \dots & \dots & e_{nk} \end{bmatrix} \begin{bmatrix} g_1 \\ g_2 \\ \vdots \\ g_k \end{bmatrix} \quad (2)$$

or,

$$\begin{bmatrix} y_{A1} \\ y_{A2} \\ y_{A3} \\ \vdots \\ y_{An} \end{bmatrix} = \begin{bmatrix} y_{B1} \\ y_{B2} \\ y_{B3} \\ \vdots \\ y_{Bn} \end{bmatrix} - \begin{bmatrix} t_{11}r_1 + t_{12}r_2 + \dots + t_{1h}r_h \\ t_{21}r_1 + t_{22}r_2 + \dots + t_{2h}r_h \\ \vdots \\ \vdots \\ t_{n1}r_1 + \dots + t_{nh}r_h \end{bmatrix} + \begin{bmatrix} e_{11}g_1 + e_{12}g_2 + \dots + e_{1k}g_k \\ e_{21}g_1 + e_{22}g_2 + \dots + e_{2k}g_k \\ \vdots \\ \vdots \\ e_{n1}g_1 + \dots + e_{nk}g_k \end{bmatrix} \quad (3)$$

The empirical problem fundamentally consists in estimating vectors y_B , r and g and matrices T and E , i.e., estimating the right hand side of equations (1) and (2), and proceeding later with the computations expressed in (3). The comparison of vectors y_A and y_B would then allow the analyst to establish the distributional consequences of the budget.

The above procedure is not by any means short of difficulties, limitations and therefore criticism. The nature of these difficulties is discussed in the present section, while the methodological approach of the study is left to be examined with more detail during the following chapters, at the time of addressing the estimation of each of the above matrix components. The exposition of difficulties may be structured according to the order of the right hand factors of expression (3).

2.3.1 Estimating the Pre fisc income Distribution

Two types of problems arise in this front: statistical and conceptual. An objective of the study is to construct an indicator of the position of economic agents with respect to their command over resources, in search of measuring their potential well being. For this purpose, the annual pre - fisc income, in the sense of the Haig - Simons definition, according to which income is equivalent to the value of consumption plus the change in net

worth, can serve as an ideal indicator.¹⁰³ The use of this ideal indicator implies that factors others than pure money income, such as production for self consumption, imputed rent of property occupied and owned by economic agents, inheritances, bequests, assets revaluation and the like, should be incorporated into the calculations. The statistical difficulties arise, on the one hand, with the lack of solid and sufficient information needed to successfully compute all of these components and, on the other, with the need to set a reasonable limit to the number of concepts of imputed income to be incorporated into the estimates.

Measuring the income size distribution requires high quality data, the collection of which is often carried out through costly and timely consuming household surveys, especially if the method of measuring the survey sample's income at different points in time during the period of reference is adopted. For reasons of quality, costs and time, the amount of data so collected is normally limited. Already a serious constraint, this limitation can be aggravated by the lack of additional sources of compatible information, certainly not an uncommon situation faced by researchers in developing countries.

Fortunately, concerning this work, it should be noted at the outset that the sample as well as the methods applied to collect and process the information compiled in the micro - data base utilized in the study, are characterized by an exceptionally high quality. In effect, this data base, generated through a national household survey, is solid and built on a competently drawn random sample and data collection procedures.¹⁰⁴ In addition, the

¹⁰³ R. Murray Haig, The federal Income Tax, New York: Columbia University Press, 1921) and Henry C. Simons, Personal Income Taxation (Chicago: University of Chicago Press, 1938).

¹⁰⁴ The characteristics of this survey are provided in the next chapter.

national authorities in charge of this initiative made a significant effort to capture all income sources, regular and non - regular, monetary and in kind, effective and imputed.

In an endeavor of the magnitude of this survey, however, not all objectives can be fully satisfied. Indeed, despite the best efforts, the survey does not provide enough information on difficult items such as inheritances, bequests, capital gains or non - remunerative involvement in family productive activities.¹⁰⁵ Nor is this kind of information available upon compatible basis from any other source. As a consequence, despite the adjustments made, the approximation to the concept of command over resources estimated in the study may not fully incorporate these items. The income measure so estimated may thus be considered to some extent restrictive; however, the fact is that the absence of information on the aforementioned items is common in income distribution calculations.

Let alone the above items, to generate the most accurate income measure of the family's command over the economy's resources, it is standard practice to incorporate upon imputed basis, at least, production for self consumption and implicit rent of owner - occupied premises. The list of imputed items may be extended to consider housewife's work, unpaid work of family members in family owned businesses, capital gains, income in kind and the like. As said before, the decision on the limits to this list should be made on the

¹⁰⁵ The involvement of family members in family business, providing work force for which they receive no direct payment is common in developing countries. This practice is especially abundant in the case of the informal sector; examples are children working in farms or shops for their parents and relatives looking after the family's store.

grounds of available information. In this sense, following the standard practice, in this thesis imputed rent for owner - occupied houses and production for self consumption have been estimated and added to the income aggregate. Likewise, a measurement of in - kind income received by the units of study has been incorporated, all of which, despite the restrictions mentioned above, has contributed to the development of a very comprehensive income estimate.

More troublesome to deal with than the foregoing statistical problems are the conceptual intricacies underlying the measurement of the pre - fisc income distribution. The magnitude of the difficulties involved has led the critics of fiscal incidence studies to reject the possibility of producing such an indicator. The strong arguments of these authors merit an extended comment.

The concept of a pre - fisc income distribution is based upon the notion of the neutral state assumption. To postulate that the incidence of fiscal policy is neutral means that in the long run subtracting benefits and adding taxes to the observed income of economic agents, does lead to the size distribution of income that would arise in a pure exchange situation. To be more precise, the neutral state assumption comprises two basic propositions: i) the no - state proposition: the existence of a pure exchange situation, i.e., no - state is possible and ii) the neutrality proposition: the existence or introduction of the state does not substantially modify the distribution of income that a no - state situation would engender.

The spirit of the neutral State assumption is fully captured in Gillespie's words:

It is presumed that an economy without a public sector could exist, or at least, could be used as a comparison base against which to measure changes in income when a public sector is introduced... The second assumption (proposition) is that the introduction of (or removal of) a public sector into (or out of) an economy does not, after sufficient time has past to re - establish equilibrium, substantially alter the original distribution of factor income by income class...so long as the composition of private output does not require significantly different factor proportions, factor rewards in the long run would not be expected to vary much, either by factor inputs or by size brackets of income.¹⁰⁶

Both components of the assumption have been strongly criticized. Prest has argued that the non - government economic counterfactual is a hypothetical construction of negligible interest as it is inconceivable that the distribution of pre - fisc income would remain unchanged after the inclusion of the activities of the public sector.¹⁰⁷ Shoup concurs with this view, observing that the assumption of a pure exchange distribution of income, equivalent to the before - tax income distribution, is untrue or meaningless.¹⁰⁸ Bird has indicated that the net effects of the budget on factor income through its impact upon relative prices, technological development and production, are unlikely to be zero.¹⁰⁹

¹⁰⁶ W.I. Gillespie, op. cit, pp. 18 - 19.

¹⁰⁷ A.R. Prest. "Statistical Calculations of Tax Burdens". Economica (August 1955) p. 244. and A.R. Prest. "The Budget and Interpersonal Distribution". Public Finance. (vol. 23. 1968).pp. 81 - 95.

¹⁰⁸ Carl Shoup. Public Finance. (Chicago, 1969), pp. 11

¹⁰⁹ Richard Bird. "Income Distribution Through the Fiscal System: The Limits of Knowledge".. American Economic Association (Vol. 70. No. 2. 1980). pp. 77 - 81

Even more severe attacks, especially to the neutrality proposition, have been addressed by Michelson, Sawers and Wachtel, and Gordon, all of whom, drawing upon a marxist approach, reject the neutrality proposition arguing that it entails the fundamental mistake of neglecting the distributive effect the logic of the capitalist system imposes on the state.¹¹⁰ In their view the state does not act as a simple neutral referee in the capitalist economy: it serves the interests of the owners of the means of production and for this reason its activities are biased against workers. The state enforces property relations and significantly influences capital and labor markets. Therefore, fiscal policy is not neutral: it entails a bias in favor of the dominant class, a bias in favor of property income.

In response to this criticism, it is worth noting at the outset that the neutral state assumption is an expression of the lack of analytical tools capable of accounting for the important dimension of reality that the state represents. It is, in other words, an assumption adopted for empirical convenience. Admittedly, while the development of thought regarding pure exchange has been significantly fruitful, the efforts to close the system, as Buchanan has called it, have rendered still insufficient theoretical progress with respect to the incorporation of the public sector.¹¹¹ This is especially true regarding the treatment of property rights and the economic effect of public regulations. As a matter of fact, a

¹¹⁰ D. Gordon. "Taxation of the Poor and the Normative Theory of Tax Incidence". Cited By Gillespie, op. cit., p. 180. L. Sawyers and Howard Watchel, " Theory of the State , Government Tax and Purchasing and Income Distribution. Review of Income and Wealth (1974). S. Michaelson, "The Economics of Real Income Distribution". Review of Radical Political Economics. (Spring Issue, 1970).

¹¹¹ J. Buchanan. Towards the Analysis of Closed Behavioral Systems, in Theory of Public Choice, edited by J. Buchanan and R.D. Tollison (Michigan University Press, 1972)

significant portion of the economic effects entailed by the existence of the public sector occurs through the enforcement of laws and regulations, the economic effects of which naturally surpass the budget cost of enforcing them. Hence, the conventional treatment of the budget with regards to incidence, does not fully cover the overall impact of the state upon the distribution of income.

While one may grant that the analytical tools for treating the distributional impact of the public sector are still rudimentary, to assume, for this reason, the existence of a no - state situation is maybe an extreme alternative. To be sure, the development of the state has been a necessary condition for the establishment of modern societies. Power relations are an intrinsic component of social systems and the state constitutes the means of expression of these relations.¹¹² The emergence and existence of modern societies is inconceivable without the development of well defined state apparatuses, which means that a no - state modern economy can hardly represent a reasonable theoretical construction.

In sum, while there are strong analytical constraints to deal with the economic impact of the public sector, there is also a firm dissatisfaction with the use of the neutral state assumption. The need to reformulate this assumption is evident. For the purpose of this study, a modest attempt in this direction may be conceived in two steps. First, the no - state proposition can be replaced by the "separability proposition", which, instead of accepting the controversial assumption that the absence of the state is theoretically possible.

¹¹² E. Torres and J. Pinto. Los Problemas de la Formación del Estado Nacional en Centroamerica. (ICAP, San Jose, 1983).

assumes that it is theoretically possible to separate and distinguish between the distributional implications of the pure exchange mechanism and the distributional action of the public sector. Secondly, the neutrality proposition can in turn be replaced by the distinction between two types of fiscal policy effects: i) income appropriation effects (changes in the income sources side, generated by the introduction of a system of laws and regulations) and ii) income redistribution effects (changes in the distribution of income once this has been generated).

The consequences of this restatement of the problem are evident. First, while the separability proposition serves a purpose which is similar to that of the no - state proposition, it does not suggest that an incomplete system, the non - closed system of Buchanan, can be assumed to be a conceivable, or a measurable reality. The intrinsic importance of the state for the existence of social systems is therefore not neglected.

Second, although the conceptual separation of the effects of the private and public sectors is a sine - qua - non condition for conceiving the possibility of conducting an incidence analysis, this separation does not lend itself to support the assumption that all effects of the budget can be actually captured by standard incidence analyses. Thus, the above distinction between effects helps to clarify the actual scope of this sort of investigation. As explained, income appropriation effects refer to the influence of the state upon the capacity of the economic agents to generate and take property of the economic product. Income redistributional effects are related to the burden of taxes and the benefits of expenditures once choices of economic agents have been made. This distinction would

lead to three basic definitions of income: i) income arising from the pure exchange mechanism, ii) income resulting from the enforcement of income appropriation policies and regulations of the state and iii) income generated by the distribution of the flows of payments of taxes and public expenditure.

Clearly enough, given the present stock of knowledge, it is difficult to obtain a satisfactory treatment of the effects of appropriation policies. Standard incidence studies are actually intended to capture the redistribution effects entailed by the income definition (iii) above. Greater theoretical progress still has to be made in the area of income appropriation effects, in order to be able to obtain a better measurement of the total effect of the public sector.

Third, in the above exposition, the assumption that the effects of appropriation policies and redistribution policies can be separated as they would occur in two different stages is implicit. To think in these terms is not unreal. Fiscal policy is normally announced; therefore, if it is assumed that economic agents make long run optimal choices, it is also plausible to assume that economic units incorporate the implications of new fiscal policies in their decision models when such policies become known, modifying their choices before the policies are enforced. These alteration of choices is what originate the aforementioned appropriation effects of fiscal policies. The new set of choices are already incorporated in the income base when taxes are collected and expenditure is carried out, i.e.,

when the public sector accomplishes its redistributive outcome.¹¹³ Thus, both types of effects are separated in time.

Finally, all of this does not imply the use of a definition of an income - counterfactual different from the one generally applied to in standard studies. The use of the separability proposition and the distinction between the distributive effects of the public sector do not intend to introduce a new approach, but instead to provide a better interpretation to the results, scope and limits of standard incidence analysis. Within this perspective, the income counterfactual generally applied in standard fiscal incidence studies would be an acceptable methodological alternative.

I admit that this controversial issue is by no means put to rest by the above exposition. There is no doubt that more theoretical work has to be done in this field before a satisfactory conclusion on this matter can be reached. This is a task that greatly surpasses the scope of this work, but for the same reason, the need to underline the limitations of the approach here applied is even more pressing. I am content that by bringing to the surface these constraints, a better interpretation of the findings of studies of this kind can be built.¹¹⁴

¹¹³ It is worth noting that these income redistribution effects are more extensive than the ones referred to by Musgrave in his classic separation of the public sector functions. The latter refers exclusively to the effects resulting from the explicit state objective of redistributing the national income, goal mainly carried out through transfer payments, while the former indicate the actual redistribution results derived from all type of tax and expenditure flow, regardless of the objectives behind these flows. See R. A. Musgrave, *op. cit.*

¹¹⁴ The above comments have to do with the estimation and use of a pre - fisc income indicator. Another issue of concern regarding the income concept is whether the use a post - fisc income indicator is more appropriate as an estimate of the standard of living of different household and therefore a more efficient income - counterfactual for tax policy purposes. Naturally, since the post - fisc income depends on the measurement and characteristics of the pre - fisc income, the statistical and conceptual problems already commented apply to both. Thus the issue we are referring to, have to do with

2.3.2 The Burden of Taxes

The second element of expression (3.1), composed of matrix T and vector r , deals with the distribution of taxes. If budget figures are available, the estimation of the vector of taxes does not normally present serious statistical difficulties. However, a special effort should be put on the consolidation of these figures, particularly when the diversity of existing taxes is large, such as in the case of Costa Rica. Particularly, regarding very small taxes, the difficult and probably not very useful approach of tracing the individual incidence of each one of them, calls for the conformation of broad tax categories. Such practice has been followed in this thesis, in order to deal with a number of small taxes for which the individual distributional pattern could not be constructed, such as fiscal stamps and business licenses, which have been incorporated into the group of sales taxes.

The main difficulties and limitations on this front involve the estimation of the distributors matrix. This matrix should conform to the incidence model being applied by the analyst, i.e., the distributors must be a reflection of the conclusions derived from the underlying model. However, controversies over alternative incidence models and

the resulting incidence estimates. The controversy regarding this issue between Vermaeten. et al on the one hand and Ruggeri et al. on the other, show that the choice between the two bases has little effect on the pattern of overall budget incidence but affects the incidence pattern of each side of the budget. See Vermaeten et.al., op. cit. and G.C. Ruggeri, D. Van Wart, and R. Howard, " The Redistributonal Impact of Taxation in Canada in Canadian Tax Journal (Vol. 42, No. 2 1994) pp. 417 - 451. We will return to this issue in chapter three.

contradicting empirical evidence, do not often allow for the arrival at definite and final incidence conclusions and, therefore, for the construction of a clear cut set of distributors. This, for instance, is the case with the corporation income tax, the property tax and even the sales tax. To deal with such controversies, the general practice is to resort to the use of what has been coined, a “standard set of incidence assumptions”, and parallel to this, a number of alternative incidence assumptions. The standard assumptions are intended to integrate the generally applied conclusions with respect to the incidence of the taxes that may be under examination. At the same time, the alternative incidence assumptions procure to take into account both the existing discrepancies on the matter and the intuitive conclusions drawn by the researcher, given the characteristic of the economy under consideration. In order to define the standard assumptions and assess the characteristics of the economy under study, the conclusions derived from the extended Harberger Model studied in first part of this chapter, are commonly used as a framework of analysis.

The procedure applied in this thesis is in conformity with this practice. Accordingly, to build the distributors matrix, a set of standard tax incidence assumptions that draw on the conclusions of the extended Harberger model and on the characteristics of the Costa Rican economy is defined. In addition to this set of standard assumptions, a complementary set of alternative assumptions is also constructed.

Two aspects of this procedure must be underlined. First, as was noted above, given the discrete - not marginal - nature of the analysis, the model is not used as an instrument to measure the new value of some variable of interest it may contain, resulting from the

introduction of new taxes. Rather, the model is used only as a guide to design. within a general equilibrium setting, the assumptions of the study. Second, the importance of the alternative set of assumptions is that they permit a sensitivity analysis and serve at the same time to define possible boundaries for the standard estimates. The details of the assumptions will be provided in chapter 4 when discussing the incidence of the tax system.

2.3.3 Estimating the Incidence of Public Expenditure

Matrix E and vector g are the last components of equation (3.1). The objective of the experiment, as expressed by these components, is to estimate the value of the benefits entailed by public expenditure and allocate them by income brackets. The accomplishment of this objective is subject to strong conceptual and statistical difficulties and limitations. How to assess the value of the benefits of public expenditure? How, in turn, to distribute this value among households?

As regards to the assessment, an attempt may be undertaken by resorting to the family's appraisal of benefits received from public expenditure.¹¹⁵ However, since individuals have strong incentives to refrain from revealing their preferences with respect to public goods and services, the problems entailed by this "benefits received" approach are formidable. An alternative solution is to use the "costs incurred on behalf of" approach. In

¹¹⁵ W.I. Gillespie, op. cit. p. 68.

this case, the cost of running the government programs can be used as the desired indicator, which, in turn, can be estimated by using market prices of the kind of goods and services provided by the state or by directly resorting to the government budget entries. Since the goods and services produced by the state may not be comparable with those produced by the private sector and sold in the market, the first method entails serious complications. Consequently, in order to arrive at the desired measurement of benefits, researchers tend to use the second method, i.e., the straightforward budget assessment method. This direct and apparently clean procedure to take care of the estimation of vector g , is not free of comments and observations.

First, the procedure is certainly limiting. The method does not embrace the complete scope of benefits derived from public expenditure, nor does it provide an exact estimate of the cost of public services. With respect to the latter, a more precise estimate of costs would have to distinguish between capital inputs (depreciation and opportunity cost of capital) and current expenditure.¹¹⁶ The estimation through budget entries would particularly under/overestimate the real value of the public goods and services produced by the government, depending on the magnitude of capital expenditures during the year of study, and the size of the stock of capital effectively used in the production of public goods and services. A correct appraisal would have to take into consideration the capital input of

¹¹⁶ For an application of this concept see Pablo Sauma and Marvin Taylor, Efectos Distributivos del Subsidio a la Educacion Preescolar, Primaria y Media en Costa Rica, (M. A. Thesis, University of Costa Rica, 1984) and Marvin Taylor, Poverty and Public Expenditure on Social Programs: The Case of Costa Rica, (M.A. Thesis, Carleton University, Ottawa Ontario, 1986).

the year plus the current expenditure of the year. The difficulty with this method lies in obtaining the value of the public capital stock involved in the production of different types of goods and services during one specific period. Since public accounting does not keep record of the market or even book value of public investments, this can actually be an insurmountable problem. Therefore, to simplify matters and cope with this difficulty it is customary to use the budget method of approximating the actual value of capital inputs.

Second, even if the estimation of costs was done in the more precise manner, the benefits reflected by this direct method are short of being comprehensive. The income benefits of a number of public goods and services extend over time instead of occurring over one specific period. This is the case, for instance, for expenditures on education, health care, meals, and all other goods and services related with the improvement of the human capital stock. These goods and services tend to occur over the years, and improve the income horizon of the individuals that receive them. Thus, the income benefits derived by the population from public expenditure on these types of items at a year in time surpasses the simple crediting of the cost of one additional year of education or a number of hospital days during that year. •

This is why it has been argued that a more complete estimate of the benefits of public expenditure should take into consideration the present value of the income generated during the remaining years of the life of the individuals that have received those services. But again, aside from the conceptual validity of this suggestion, the severe complications underlying the measurement of the income benefits resulting from the improvement of the

human capital stock, especially regarding health and nutrition services, have led researchers to restrict themselves to the use of the cost - related annual impact of public expenditure. To summarize, given the conceptual and technical difficulties of other alternative methods, in order to estimate vector g , it is the practice to use the straightforward cost - budget - entry/single - annual - impact method, estimation procedure that is also applied in this thesis.

With the estimation of vector g having been taken care of, the calculation of matrix E would remain. As in the case of taxes, These distributors matrix is the one that presents the most serious problems. The difficulties are even greater in this case because, as has been seen, the theory in the field of public expenditure incidence is rather in its infancy, as compared with the theory of tax incidence.

As we already saw, for distributional purposes, public expenditures are classified into three basic categories: Transfers, specific or mixed goods and general or pure public goods.¹¹⁷ The allocation of the first is straightforward, as transfers are treated as negative taxes received by the incumbent households.¹¹⁸ To deal with the second category, it is the practice to use a variety of indicators to construct matrix E , in conformity with the distribution of intended recipients, users or consumers of the good or service under study. For instance, expenditures on education may be distributed in agreement with the number of registered students by their educational level; on curative medicine, according to the

¹¹⁷ W. I. Gillespie (1980) *op. cit.*, p. 68.

¹¹⁸ See footnote 51 above, on the caveats regarding this treatment of transfers.

distribution of patients; on roads, with respect to the concentration of vehicles and so forth. A pure public good component of these specific goods and services is also normally assumed. This component receives the distributional treatment reserved for pure public goods and services. The selection of the distributional indicators of specific public goods and services would depend on the incidence model in the mind of the researcher and the availability of information needed to create the desired indicators.

The third category, pure or general public expenditure, is the most problematic one. The fact that goods and services included in this category are available for consumption to everyone in equal amounts, and are not subject to exclusion, makes difficult the selection of appropriate indicators to allocate them among income categories. The large magnitude of this category and therefore its major impact upon the income distribution, aggravates the situation. The allocation is normally accomplished by resorting to the distribution of families and income as indicators. However, as explained in previous chapters, this arbitrariness in the selection of distributional indicators has been criticized by Aaron and McGuire. They have observed that the income benefit of pure public goods should be imputed in proportion to the reciprocal of the marginal utility of private goods expenditure or income, a proposition that was later complemented by Maital with suggestions for the empirical application of this rule.¹¹⁹ Nevertheless, Gillespie has questioned the theoretical basis of this procedure, rightly concluding that Aaron and McGuire have merely replaced

¹¹⁹ Henry Aaron and Martin McGuire "Public Goods and Income Distribution" *Econometrica*, (Vol. 38, No. 6, November, 1970) pp. 907-921. Shlomo Maital, "Public Goods and Income Distribution: Some Further Results" *Econometrica*, (Vol. 41, No. 3, May 1973). pp. 391 - 399

one set of arbitrary assumptions (referring to the selection of a distribution indicator) for another (regarding the behavior of the marginal utility of pure public goods with respect to income). Thus, what seems to be a solid theoretical method for distributing expenditures in pure public goods and services actually masks another source of arbitrariness.

As was seen in section 2.1.3.2, strong criticism to this approach has also been raised by Brennan, in whose opinion the allocation of the benefits of pure public expenditures is, in fact, best done with the use of the personal income distribution as an indicator.¹²⁰

Reaffirming this assertion, Gillespie has shown that in the case of Canada, the distribution of general public goods resulting from the use of Aaron and McGuire method does not actually differ much from those obtained by using income as the distribution indicator.¹²¹

There is no doubt that together with the controversy over the possibility of producing a pre - fisc income measurement, the treatment of pure public goods is one of the major issues of dispute in incidence studies. Concerning this thesis, the estimates here presented follow the standard practice of using the distribution of families and income as indicators to allocate pure public goods and services. In addition, to complement and test the sensitivity of the estimates, a set of indicators based on the Aaron and McGuire's theoretical contribution has been calculated. The detailed explanation of the specific methodological aspects concerning this approach will be given in chapter five.

¹²⁰ See Geoffrey Brennan, "The Distributional Implications of Public Goods", *Econometrica*, (Vol. 44, No.2, March, 1976) pp. 391 - 399.

¹²¹ W. I. Gillespie, (1980), op. cit., p. 122

Finally, it is worth noting that, as it is in the case of taxes, to deal with the generally accepted conclusions and the alternative views regarding the distribution of public expenditure, the study produces a set of standard distributional assumptions, parallel to a set of alternative or experimental assumptions. Likewise, for the overall distributional analysis of the budget, a selected combination of tax and expenditure incidence assumptions will be used. It is worth noting again that the alternative set of assumptions will be useful to subject the estimates to an analysis of sensitivity and to define reasonable boundaries for them. The corresponding methodological details shall be provided in chapters five and six, prior to the presentation of the results on the incidence of public expenditures and the overall impact of the budget.

2.3.4 Measuring the concentration of Income, Taxes and Public Expenditures: The Gini Coefficient

We conclude this section on the general methodological procedures and their limitations, turning now our attention to a final issue of concern: how should the concentration of income, taxes and expenditure be measured, i.e., what indicator can be used to specify the distributional characteristics of these variables ?

More than thirty indicators of inequality have been suggested to study the patterns of dispersion of variables such as income, including variation and asymmetry measures.

social welfare functions, and statistically based mathematical functions.¹²² A good inequality index should fulfill at least four properties: sensitivity to transfers, independence of scale, independence with respect to the numbers of units of analysis, and desirably but not strictly, variation between zero and one. The first property indicates that the index must decrease if a transfer of income from a high income unit to a lower income unit occurs. The second establishes that the index must be independent of the units in which income is to be measured, so that if income is scaled up or down the index must remain without change. The third sets forth that if the number of observations change the index should not vary, thus allowing for the comparison of the degree of inequality recorded by populations of different sizes. The fourth is self explanatory.

A number of indexes of inequality, such as the Atkinson index, the Theil index, the coefficient of variation and the Gini coefficient, in variable degrees perform well with respect to the above parameters and are normally used. However, among them perhaps the best known is the Gini coefficient. Furthermore, this index not only satisfies the above principles but also, as Champernowne has shown, is the most efficient for measuring inequality when the distribution shows some concentration in the central part of the scale, as occurs with the income distribution in Costa Rica.¹²³ In addition, the Gini coefficient features the attractive decomposition property, which allows for the disaggregation of the

¹²² Manuel Baldares, op.cit., p. 38.

¹²³ D.G. Champernowne, "A comparison of measures of inequality of income distribution", Economic Journal (Volume 84, 1974) pp. 787 - 816

overall distribution into different additive components, so as to obtain a better explanation of the observed pattern of inequality.

Thus, although the Gini coefficient is not the only indicator that can be used to describe inequality, for reasons related with its familiarity, ease of interpretation, and decomposition property, I have chosen to use this indicator in this thesis. In addition, where applicable, in order to complement the analysis and description of the distributions, profiting from the contribution by Fei, Ranis and Kuo, the Gini coefficient will be decomposed into factor pseudo Ginis and Ginis.¹²⁴ The definition and characteristics of the pseudo Ginis as well as the method of decomposition are contained in appendix II.1.

Summary of Section 2.3

To summarize this final section on the general methodological procedures of the study: producing a set of fiscal incidence estimates encompasses four stages: the estimation of a pre - fisc size distribution of income, the estimation of the tax payments made by individuals and its subtraction from the pre - fisc size distribution of income, the estimation of the benefits of public expenditure and its addition to the pre-fisc size

¹²⁴John C.H. Fei, Gustav Ranis and Shirley W.Y. Kuo. Growth with Equity: The Case of Taiwan. (Oxford University Press, 1979). pp. 76 - 83.

distribution of income, and the comparison and analysis of the resulting post-fisc size distribution of income against the pre fisc distribution.

The definition and measurement of a pre and post-fisc income indicator confronts serious conceptual and methodological difficulties. This study uses a national survey to obtain a measurement of the size distribution of income in Costa Rica. As regards to taxes and to public expenditures, the major complications have to do with the estimation of the distributors of these categories among families, especially with respect to pure public goods and services. For the construction of these distributors, a set of standard assumptions, based on the conclusion of the Harberger model and the characteristics of the Costa Rican economy will be adopted. Parallel to this, a set of alternative assumptions will be defined. The detailed treatment of these assumptions as well as all other specific methodological aspects are deferred to the following chapters. In order to measure the concentration of income, taxes and public expenditures the Gini coefficient will be used.

CHAPTER 3

MEASUREMENT AND CHARACTERISTICS OF THE PRE - FISC SIZE DISTRIBUTION OF INCOME IN COSTA RICA

Chapter 2 has provided the theoretical framework and general methodological guidelines of the study. The major findings and specific methodological features of the thesis will be discussed in this and the following chapters.

This chapter lays down the basis for the experiments that follow, as it evaluates the characteristics of the size distribution of income in Costa Rica before the incorporation of the public sector. The discussion is preceded by an examination of the data sources and the income definitions that will be used throughout the study.

3.1 Data Source: Major Features of The Income and Expenditure Survey

The Income and Expenditure Survey, completed by the Directorate General of Statistics and Census of Costa Rica (DGSC) in November of 1988, is the basic data source of the study. This survey, originally conceived to update the weights of the general price index which at that time was being estimated with an outdated 1974 consumption basket,

has provided us with a rich set of micro data at the household level that has been instrumental for the construction of the incidence estimates presented in this thesis.

Realizing that this was a special opportunity to collect information for national planning purposes, the authorities involved in the design of the survey extended its objectives and scope to include information on poverty, income, consumption and access to selected public goods and services.

With this unique combination of data, summarized in one single source and never before available as such in the country, we have been able to develop the income structures and the distributor matrices of taxes and public expenditure that constitute the core of this investigation.

The survey covers the entire country and was designed to yield results for five national planning regions as well as for the urban and rural areas.¹ The sampling units are the individual houses; however, the units of analysis are the household members, defined as the individuals normally living in the household. This includes persons who were temporarily absent at the time of the interviews and household workers who were not receiving money in return for their services but in - kind compensation, such as food, shelter, clothing and education.

¹The findings of this study are presented only at the latter geographical levels of disaggregation.

A household is defined as the group of individuals, with or without family links, that normally dwell in one single house, participate in the utilization of this house, maintain one single budget, interact with each other and jointly cook and eat their own food.²

The sample is composed of 4.884 houses, which were visited for 12 months. The information was collected continuously, beginning in November 1987 and concluding in November 1988. Five topics were investigated by means of this long endeavor, namely, i) family income, ii) household expenditures, iii) financial transactions of the household, iv) demographic and occupational characteristics of the household members and v) characteristics of their houses, including type, ownership, physical conditions, access to public services and equipment.

The information was collected, using seven questionnaires, through direct interviews and self - registration methods that demanded the continuous cooperation of the sample households. Because of the use of this collection method, the information was subjected to a meticulous processing stage, giving extreme attention to the tasks of assessment and criticism of questionnaires, registration of data and consistency analysis. This high concern of the DGSC for producing a reliable and good quality data base was the main reason for a long time to elapse before the results of the survey were fully ready to be used by researchers and national authorities.

²Dirección General de Estadísticas y Censos, Encuesta de Ingresos y Gastos de los Hogares: Conceptos y Definiciones (San Jose: Mimeo, 1977), p. 5.

The information was produced both at the household and the individual levels; however, for reasons related with the secrecy of the information, our access was limited only to the family cluster level. At any rate, for the objectives of this study, such level of desegregation was satisfactory enough.

Finally, in order to generate estimations for the entire population, the results of the survey were extrapolated using weights applicable to each family associated with its regional site of residence. For those interested in obtaining a more complete reference of the data collected, a selected set of the questionnaires used during the interviews is shown in appendix III.1.

It has been said that the results of the survey were accessible for the use of researchers after a considerable time span. It was actually under exceptional terms, strictly for the purpose of undertaking this investigation and thanks to the good cooperation of the authorities of the DGSC, that a comprehensive micro data base was provided for the first time to an external user. This study is therefore one of the very first to profit from the availability of this rich micro data base. Hopefully, the intensive use of this information will stimulate the application of alternative approaches to the analysis of income and consumption in Costa Rica, and will produce additional evidence on this subject and complement the findings of this study.

3.2 The Survey's Income Definition

With respect to the income definition, the survey subscribes to the general guidelines of United Nations, which emphasize the concepts of in - kind income and production for self - consumption and group income into four categories: primary income, self employment income, transfers and other income.³ In response to these guidelines, the Directorate General of Statistics and Census made a significant effort to capture the information required for the estimation of the indicated non - monetary items and identify as clearly as possible the aforementioned income categories.

According to the survey, a receipt of money or the like is considered income, insofar as such inflow is repeated within a specific period of time, regardless of the frequency of the repetitions or the capacity of the income flows so obtained to maintain any given household expenditure level.⁴

As expressed above, income is determined by the sum of primary income, property income, regular transfers and other types of income. Primary income is composed of the monetary and in - kind income received by individuals in compensation for their participation in the production process. It comprises income for both dependent and independent work, including monetary and in - kind payments received by wage earners, as

³Dirección General de Estadísticas y Censos, op.cit., p.1. and Juan Diego Trejos y María L. Elizalde, Costa Rica: La Distribución del Ingreso y el Acceso a los Programas de Caracter Social. (San Jose: IICE, Universidad de Costa Rica, 1985) p.8.

⁴Dirección General de Estadísticas y Censos, Encuesta de Ingresos y Gastos de los Hogares,(San José: Ministerio de Economía, Setiembre de 1986) p. 7.

well as monetary income and production for self consumption generated by self employed individuals. Property income is composed of income arising from the holding of real and financial assets or of any other non - physical assets such as licenses, trade marks, patents and the like. Imputed income for owner occupied premises is also included in this category.

Income for regular transfers and other social security benefits comprises pensions, food allowances, monetary subsidies, assistance from other households, scholarships, and any other transfer received on regular basis. It also includes imputed rent of housing provided to some households by other households or institutions. Although the ample coverage of this transfer category, the transfer component that actually prevails is pension payments. Finally, in the category of other incomes, the survey has grouped all monetary and in - kind income originated by non - regular transfers from institutions or individuals such as lotteries, inheritances, gifts and others.

According to the above guidelines, total household income is defined as the sum of the income flows received by each member of the household, be it in money or in kind, and whether or not such income flows are destined to a common or individual fund or are received upon regular or occasional basis. Likewise, in conformity with these guidelines, total household income is classified into the four aforementioned categories: primary income, property income, transfers and other income.

3.3 The Study's Income Definition

It has been set forth that the unit of analysis of this thesis is the household. Therefore, the above total household income definition is the adequate point of departure for the construction of the study's income counterfactual.

The survey's household income definition, gross of taxes and transfers, i.e., including both concepts, is essentially what Gillespie, in his study of fiscal incidence in Canada, has called Basic Income (BY).⁵ As this author has indicated, although said income base has been widely used in incidence studies, it does not allow for a conceptually consistent treatment of the incidence of the public sector.⁶ Consistency requires that either the public sector is entirely excluded from the income counterfactual or that it is fully incorporated into it.⁷ If excluded, the counterfactual should omit public expenditure and government transfers and include tax payments. If included, public expenditure and government transfers should be incorporated and tax payments omitted.

⁵W. Irwin Gillespie, op. cit. p. 17.

⁶For examples of studies using this income base see Joseph A. Pechman, op.cit., Edgar Browning and W. Johnson, op.cit., Sheila Block and Richard Shielington, "Incidence of Taxes in Ontario in 1991", research paper prepared for the Ontario Fair Tax Commission. (mimeo, Toronto, 1991), Ronald Meng and W.I. Gillespie, "The Regressivity of Property Taxes in Canada: Another Look" Canadian Tax Journal (vol. 34, No.6) pp. 1417 - 30, and Frank Vermaeten et.al. op.cit.

⁷W.I. Gillespie. op. cit. p. 18

Following Gillespie's definitions we will call the first of these counterfactuals, i.e., the one that excludes the public sector, Broad Income (Y) and the second, i.e., that which includes it, Adjusted Broad Income (AY).⁸

Thus, if we distinguish between public expenditure (E) and government transfers (R) and take into account that Basic Income (BY) is an estimate before taxes (T) and includes government transfers, departing from the concepts emanating from the survey, the definitions of Broad Income and Adjusted Broad Income can be expressed as follows:

$$Y = BY - R \quad (1)$$

[*Broad Income*]

$$AY = BY + E - T \quad (2)$$

[*Adjusted Broad Income*], or

$$AY = Y + R + E - T \quad (3)$$

Both the Broad Income and Adjusted Broad Income concepts can be used to produce a set of incidence estimates. If the interest is to measure the impact of the introduction of the public sector upon the income structure prevailing before the application

⁸Ibid.

of the public budget, the use of the Broad Income is called for. Thus, the incidence of taxes would be equivalent to the set of ratios T_i/Y_i , where T_i and Y_i represent the allocation of taxes and income corresponding to each family unit, while the incidence of expenditures and transfers would be given by the set of ratios $(E_i + R_i)/Y_i$, where E_i and R_i represent the apportionment of expenditure and transfers received by each household.

On the other hand, if the intention is to obtain an estimate of the impact of the public sector upon the income structure that has resulted from the application of the budget, the Adjusted Broad Income definition must be used. In this case, the incidence of taxes is obtained by the ratio T_i/AY_i or $T_i/(Y_i+R_i+E_i - T_i)$, while the incidence of transfers and expenditure would be given by the set of ratios $(R_i+E_i)/AY_i$ or $(R_i+E_i)/(Y_i+R_i+E_i - T_i)$.

Finally, if for policy purposes the objective is to produce these incidence indicators using the eclectic Basic Income definition, the denominator of the aforementioned expressions must be replaced by BY , i.e., the survey's household income definition.

Despite the above inconsistency of the Basic Income base, as Vermaeten, Gillespie and Vermaeten have noted, this base is useful to answer the question:

“What share of income directly controlled by families does the government collect in taxes? (Furthermore) this income measure is useful for policy makers because they are often interested in analyzing the impact of proposed tax changes on the relative after - tax, after - transfer economic position of families”⁹

⁹Frank Vermaeten et.al., op.cit. pp 354.

On the other hand, the advantage of the Broad Income definition base is that

"it provides a comprehensive measure of income before the government redistributes it through the collection of taxes and dispensing of transfers and goods and services. [Thus] the tax incidence rates calculated using this income base can be interpreted as answering the question: What share of the families' market incomes does the government collect in taxes? They describe how the government takes on the tax side without attempting to account for how the government gives on the spending side."¹⁰

By the same token, the transfers and public expenditure incidence rates calculated with this income base can be interpreted as answering the question: What proportion do the benefits provided by the government (in the form of transfers and public expenditures) represent, in terms of the families' market incomes? They describe how the government gives on the spending tax side without attempting to account for how the government takes on the tax side.

Concerning the post - fisc income base, its advantage is that

"it provides the most comprehensive measure of the three income bases [above examined]. The tax incidence rates [and the public expenditure and transfers incidence rates] reflect the fact that government redistributes tax dollars through both transfers and the provision of services. The tax incidence rates can be interpreted as answering the question, What share of after - tax income, including the imputed from government services, does the government collect in taxes? These rates provide a clear picture of how the government takes on the tax side, after it has given on the spending side".¹¹

Likewise, the public expenditure incidence rates can be interpreted as answering the question, What share of after-tax and public expenditure income does the government

¹⁰Ibid, pp 353.

¹¹Ibid, p. 354

return to the families in the form of goods and services? These rates explain how the government affects the distribution of income through the spending side after it has taken from the tax side.

Notwithstanding the disadvantage of the Basic Income concept in that it allows for some part , but not all of the government, due to its extended application in studies of this kind and because of its usefulness for policy, I have decided to use it in the calculations. Thus, the estimates will be produced for the three income bases.

In the next two chapters I first offer a set of incidence estimates based on the Basic and Broad Income definitions. The resulting implications according to the post - fisc distribution will be left for chapter six. To be more specific, the sequence of presentation of findings is the following: first, in the present chapter, we shall examine the structure of the pre - fisc income distribution, as reflected by both the Basic and the Broad Income definitions. This will provide the basis for the incidence analysis. Then, in the following two chapters, we will study the way in which the pre - fisc income distribution is affected by taxes and public expenditure. And in chapter six we conclude the exposition with an analysis of the resulting post - fisc income distribution and the corresponding incidence estimates.

The empirical construction of the aforementioned income indicators and their separation into analytical classes deserve a number of comments. First, as said before, the pension payments arising from the various existing public sector pension systems are the predominant component of the survey's estimate of transfers. As will be discussed in detail

in chapter six, there are two basic pension systems in Costa Rica: contributory and non - contributory. The contributory system is composed of eight schemes: seven specific to the employees of the institutions that support them and one of general coverage.¹² The non - contributory system, of very modest size (9% of the payments made by all systems), includes the Non - Contributory Fund which provides coverage to individuals that have no access to other systems, the small pension payments to victims of wars and the pension payments to former presidents and outstanding citizens.¹³

In order to build the Broad Income indicator, in principle, one must deduct from the Basic Income estimate those government transfers that are uncompensated by contributions of the recipients, i.e., the net government transfers. However, the survey does not distinguish between the contributory and the non - contributory systems or, in general, between the contributions to the pension systems and all of the uncompensated or net transfers of the public sector. In spite of this, considering, first, that the various pension systems are to a large extent financed with contributions of the public sector, second, that for this reason the payments obtained by the beneficiaries are not related to their

¹²The schemes are: Teachers and Professors, Judicial Power, Ministry of Finance and Legislative Power, Ministry of Public Works and Transportation, and the smaller funds of Communications, Public Registration Bureau, and Pacific Electric Rail Road. The one of general coverage is the Disability, Ageing and Death Fund. See Adrian Rodriguez, El Gasto Publico en Programas de Seguridad Social: Estudio de su Efecto Distributivo en 1982. (Documentos de Trabajo No. 102, IICE, Universidad de Costa Rica, diciembre 1986), pp. 5 - 20.

¹³Ibid

contributions, as it would occur with a retirement saving system, and third that the government payments are registered annually as part of the public budget, in order to arrive at the Broad and Adjusted Broad income estimates, this study considers public all transfers reported in the survey and therefore deductible from the Basic Income.

The second comment is related with the arrangement of households by income brackets. In order to list the households by income size, three alternative indicators may be used: i) total household income, ii) household per capita income and iii) the more complex, income per adult equivalent.¹⁴ A strong limitation of the first indicator is its failure to incorporate the size and age structure of the household. Because of this it is an inefficient proxy of the actual command over resources and consumption possibilities available to family members. The second indicator takes into account the size of the household and for this reason it is more efficient than the former. The third incorporates both the size and age structure of the families, overcoming the limitations of the other two.

For the above reasons, in order to arrange the families in accordance to their consumption potentials, to use the income per adult - equivalent suggests itself as the most appropriate approach to follow. However, to generate this indicator is not simple. One way of constructing it is by converting every household member into adult equivalents, upon the

¹⁴Juan Diego Trejos, La Distribucion del Ingreso de las Familias Costarricenses: Algunas Caracteristicas en 1977, (San Jose: IICE, Universidad de Costa Rica, 1983), pp. 61 - 62 and Rakesh Mohan. An Anatomy of the Distribution of Urban Income. A Tale of Two Cities in Colombia (Washington: The World Bank Staff Working Papers, No. 650, 1984).

basis of individual consumption parameters, clearly identified by age and sex. However, as Mohan has indicated,

"while some norms can be found to derive adult equivalents on age and food consumption, it is difficult to do so for consumption as a whole. For example, it may well be that, while a child may require less nutrition than an adult, expenditure on his/her education and health might well exceed those for adults. It is therefore difficult to estimate adult equivalents for total consumption".¹⁵

Perhaps due in part to these difficulties, it is not customary to apply such a complex variable to classify households by income brackets in studies of this kind. In the particular case of this study, it is considered beyond scope and need to proceed as such, i.e., to estimate the required individual consumption parameters and reduce all households to adult equivalent terms. Therefore, the standard practice of using household per capita income to classify the families by deciles has been considered quite satisfactory. Thus, the total income of each family divided by the number of its corresponding members, is here used as the indicator to arrange the families by income levels, classify them by income brackets, and produce the required deciles.

This section completes the examination of the methodological issues related with the income distribution. The following section summarizes the findings with respect to the distribution of the pre - fisc income indicators, namely, Basic Income and Broad Income. The structure of the Adjusted Broad Income will be considered in chapter six.

¹⁵Rakesh Mohan, op.cit., p.5.

3.4 The Distribution of the Family Basic Income

In section 3.3 the definition of Basic Income (BY), i.e., the income level reported by the Income and Expenditure Survey, was set forth. Tables 3.1 and 3.2 show the family distribution of this indicator for the whole country and by regions.

The overall pattern of inequality

The overall pattern of inequality is best summarized by the Gini coefficient which reaches a level of 0.36 for the whole country. The lowest 10 percent of the families receives 2.2 percent of the Basic Income, compared with 27 percent corresponding to the richest decile. Put another way, the amount of income received by the top decile is 12 times the level achieved by the poorest decile.

Further grouping indicates that the poorest 50 percent of the population receives only 25 percent of the Basic Income, their average income being three times lower than that of the upper 50 percent (table 3.3).

It has been said that the family per capita income is a better indicator of the consumption possibilities of the population. Table 3.4 shows that for the whole country this indicator reaches an average of 6,120 colones, compared with 24,870 colones for the top 10 percent and 1,146 for the bottom 10 percent. The relation between these two extremes of

Table 3.1
Basic Income: Family Distribution of Monthly Total, by Deciles and Region, 1988
(millions of Colones)

Deciles	Country	Urban	Rural
First	382.3	328.8	154.5
Second	716.6	496.9	253.6
Third	942.4	597.0	349.4
Fourth	1,104.8	688.7	434.2
Fifth	1,232.8	841.8	494.9
Sixth	1,547.7	1,026.5	598.5
Seventh	1,767.2	1,162.1	660.1
Eight	2,187.1	1,372.8	787.1
Nineth	2,779.5	1,659.3	947.3
Tenth	4,674.3	2,723.2	1,757.8
Total	17,334.4	10,897.1	6,437.3

Source: DGSC. Income and Expenditure Survey

Table 3.2
Basic Income: Family Distribution of Monthly Total, by Deciles and Region, 1988
(percent)

Deciles	Country	Urban	Rural
First	2.2	3.0	2.4
Second	4.1	4.6	3.9
Third	5.4	5.5	5.4
Fourth	6.4	6.3	6.8
Fifth	7.1	7.7	7.8
Sixth	8.9	9.4	9.3
Seventh	10.2	10.7	10.2
Eighth	12.6	15.2	14.7
Nineth	16.0	15.2	14.7
Tenth	27.0	25.0	27.3
Ratio of top 10 percent to bottom 10 percent.	12.2	8.3	11.4
Gini Coefficient	35.5	32.3	34.6

Source: DGSC. Income and Expenditure Survey

Table 3.3
Basic Income : Monthly Family Average by Deciles and Region, 1988
(Colones)

Deciles	Country	Urban	Rural
First	6,168.0	10,413.0	5,116.0
Second	11,642.0	15,735.0	8,395.0
Third	15,226.0	19,058.0	11,486.0
Fourth	17,975.0	21,679.0	14,451.0
Fifth	19,940.0	26,817.0	16,466.0
Sixth	25,082.0	32,273.0	19,882.0
Seventh	28,658.0	37,153.0	21,774.0
Eighth	35,345.0	43,205.0	26,013.0
Nineth	45,030.0	52,490.0	31,411.0
Tenth	75,730.0	86,781.0	58,270.0
Total Average	28,076.0	34,540.0	21,321.0

Source: DGSC. Income and Expenditure Survey

Table 3.4
Basic Income: Monthly Family Per Capita by Deciles and Region, 1988
(Colones)

Deciles	Country	Urban	Rural
First	1,146.0	1,937.0	887.0
Second	2,133.0	3,006.0	1,610.0
Third	2,879.0	3,092.0	2,150.0
Fourth	3,590.0	4,825.0	2,761.0
Fifth	4,332.0	5,805.0	3,327.0
Sixth	5,230.0	7,133.0	3,927.0
Seventh	6,492.0	8,850.0	4,640.0
Eighth	8,558.0	11,232.0	5,638.0
Nineth	11,991.0	15,127.0	7,638.0
Tenth	24,870.0	29,761.0	7,816.0
Average	6,120.0	7,929.0	4,415.0
Ratio of top 10 percent to Bottom 10 percent	21.7	15.4	8.8

Source: DGSC. Income and Expenditure Survey

family per capita income is 22 to one. The relation between their respective family income is 12 to one.

The reason for this difference in proportions is that the number of family members is inversely correlated with the family income size, an assertion confirmed by the results summarized in tables III.1 to III.3 of the appendix. Here it can be seen that the poorest families tend to be larger than the ones enjoying a better economic position.

Thus, the consumption possibilities of the poorest individuals are not only affected by the unequal distribution of total income but also by the larger size of their families. The combined effect of these two aspects is made apparent by the set of ratios of income shares to persons shares, also summarized in the above tables. In sum, the gap between the population in the fringe and the richest families is strikingly high for both the whole country and for its subregions.

Regional patterns

A closer look at the pattern of inequality by regions shows that while half of the families and persons live in urban areas, they absorbed almost two thirds of total Basic Income (tables III.4 and III.5 of the appendix).

Rural areas are not only affected by this unequal regional income distribution but also by the more unequal sharing of income among the households living in the

countryside, vis-à-vis the rest of the country. While the urban areas show a Gini coefficient of 0.33 and an 8.3 income ratio between the top and bottom 10 percent of families, the rural areas exhibits figures for both indicators of 0.35 and 11.3, respectively. The lower proportion of income corresponding to the rural areas permeates all income brackets, as shown by their consistently lower average monthly family Basic Income levels, compared with the levels observed by the equivalent urban income brackets. The situation gets worse if the income per capita is used as a reference, since the pattern of negative correlation between total income and family size is not only maintained but strengthened in rural areas.

Thus, the consumption possibilities of individuals living in rural areas are negatively affected by the adversities of an unequal distribution of income between urban and rural areas, by the greater degree of inequality prevailing among rural households and by the larger size of rural families.

Complementary evidence on the latter is presented in appendix tables III.6 to III.8. The figures are indicative that the pattern of increasing burden of dependents and lower income levels, which is observed in the whole country, also has a strong foundation in rural areas. These tables also reconfirm that wage earners are the most important category of income recipients, at all income levels and in both rural - the first decile excepted - and urban regions. The departure from this behavior observed by the first decile of the rural areas is explained by the relevance of self employment and production for self consumption among the poor in county side.

Income components

Tables 3.5 to 3.7 and appendix tables III.9 to III.11 show the composition of Basic Income by factors as well as their respective distribution by deciles and regions. Wage income is certainly the major factor component of Basic Income, averaging more than 60 percent for the whole country. Wages are followed by self employment income (22%), regular transfers (10%), other income (3%) and property income (3%). This global income composition suggests that labor and wage policies can be the most effective instruments to introduce changes in the distribution of income in Costa Rica.

Looking at the extremes of the distribution, the factor composition of the lowest 20 percent basically observes the same pattern, but as could have been expected, the importance of property income and other income decrease to 1 percent, while self employment income increases to 25%, reflecting the effect of the urban informal sector and the rural production for self consumption.

The upper 20 percent shows a decrease in the participation of wages to 53 percent, compensated by increases in self employment (25%), property income (6%), transfers (11%) and other income (6%). It is very likely that the low participation of property income and other income in this upper level reflects an underestimation of such components, due to the tendency of respondents to under declare the income received from sensitive sources.

Table 3.5
Basic Income: Country Monthly Family Distribution by
Deciles and Factor Components, 1988
(Millions of Colones)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Transfers	Other Income
First	382.3	185.8	125.6	6.3	57.8	7.4
Second	716.5	490.1	158.8	3.3	56.1	9.1
Third	942.4	620.4	232.0	8.6	64.7	16.9
Fourth	1,104.8	799.3	221.8	6.2	61.0	16.5
Fifth	1,232.8	850.0	268.0	13.1	80.1	22.4
Sixth	1,547.7	1,061.2	304.1	28.3	110.3	43.8
Seventh	1,767.2	1,182.7	363.6	28.3	170.2	22.4
Eighth	2,187.1	1,426.8	441.8	51.9	230.2	36.5
Ninth	2,797.5	1,864.3	512.1	81.6	239.3	82.1
Tenth	4,674.3	2,100.1	1,289.9	355.0	598.5	330.9
Total	17,334.4	10,580.6	3,917.6	582.6	1,668.3	587.9
Ratio of top ten Percent to Bottom 10 Percent	12.2	11.3	10.3	56.3	10.4	44.7

Source: DGSC. Income and Expenditure Survey

Table 3.6
Basic Income: Urban Monthly Family Distribution
by Deciles and Factors Components, 1988
(Millions of Colones)

Deciles	Total		Wage Income	Self Employment		Property Income	Transfers	Other Income
	Income			Income				
First	328.8		224.0	46.3		2.1	55.8	2.6
Second	496.9		324.0	113.3		6.5	44.6	8.6
Third	597.0		422.7	110.7		7.2	49.1	7.3
Fourth	688.7		516.0	86.1		16.6	51.4	18.5
Fifth	841.8		574.1	152.2		14.8	90.2	10.5
Sixth	1,026.5		704.3	169.6		12.9	126.3	13.3
Seventh	1,162.1		797.3	189.9		30.2	124.3	20.4
Eighth	1,372.8		939.5	212.6		18.2	163.8	38.7
Ninth	1,659.3		996.2	302.9		100.7	217.3	42.2
Tenth	2,723.2		1,316.9	720.0		216.6	316.7	153.1
Total	10,897.1		6,814.9	2,103.5		425.9	1,237.5	315.2
Ratio Top ten Percent Bottom ten Percent	8.28		6	15.5		103.4	5.7	58.9

Source: DGSC. Income and Expenditure Survey

Table 3.7
Basic Income: Rural Monthly Family Distribution
by Deciles and Factor Components, 1988
(Millions of Colones)

Deciles	Total		Wage		Self Employment		Property		Transfers		Other	
	Income		Income		Income		Income				Income	
First	154.5		69.8		136.4		3.3		21.8		3.2	
Second	253.6		148.3		76.4		2.4		22.8		3.7	
Third	349.4		235.5		94.3		1.8		13.2		5.6	
Fourth	434.2		273.6		126.3		2.0		23.8		8.7	
Fifth	494.9		344.4		109.8		1.5		30.3		8.8	
Sixth	598.5		437.4		129.7		4.7		15.1		11.6	
Seventh	660.1		453.0		150.6		8.3		32.1		16.7	
Eighth	787.1		482.6		213.5		10.7		63.5		16.8	
Ninth	947.3		562.0		282.2		19.4		65.1		18.6	
Tenth	1,757.8		759.0		574.3		102.5		143.0		179.0	
Total	6,437.3		3,765.7		1,814.1		156.7		430.8		272.7	
Ratio of top ten Percent												
to Bottom ten Percent												
	11.3		10.9		4.2		31.6		6.6		59.7	

Source: DGSC, Income and Expenditure Survey

The strongest factor component concentration, as measured by the Gini coefficient of the factors themselves, is shown by the category of property income (Gini, 0.69), followed by other income (0.62), transfers (0.44), self employment income (0.37) and wage income (0.31). The way in which these different factor concentration levels in combination with the factor weights affect the overall degree of inequality will be examined shortly.

Returning to regional comparisons, wages represent two thirds of the income earned by the lowest 20 percent of urban families, compared with 53 percent in rural areas. In both regions self employment income is the second in importance followed by transfers. The former is, however, much more important in rural areas (33% as compared with 19% in urban areas), reflecting the prevalence of production for self consumption among rural households.

Regarding the upper 20 percent, wages are more important for urban household (53%) than for rural families (48%), while again the opposite occurs with self employment income (23% and 31% respectively). Although property income and other income show the strongest concentration in both urban and rural regions, this situation is more evident in the latter, where two thirds of the income from those sources is appropriated by the richest decile.

Decomposition of inequality

Table 3.8 summarizes the contribution of each factor component to global inequality, as reflected by the decomposition of the Gini coefficient.

The contribution of a factor to total inequality is directly correlated with its weight and the magnitude of its Gini coefficient and inversely linked with the correlation it may observe with total family income, as measured by the factor correlation characteristic defined in chapter 2. Thus, if an income component is positively correlated with total family income, has a significant weight and is very unequally distributed, it will strongly contribute to total inequality. However, if it shows a negative correlation, a heavy weight and large Gini indicate that it substantially contributes to total equality.

In the particular case of the Basic Income, none of the components manifests negative correlation, indicating that all factors contribute in different degrees to inequality. Further ahead, when working with the distribution of taxes and expenditures, the distinction between pro - equality and pro - inequality components will be more evident.

The fact that 54 percent of the country's inequality is originated by the distribution of wages, followed by self employment income (25%) is documented by the figures of table 3.8. Despite the strong concentration of property income and other income, due to their low weight their respective contribution to total inequality is relatively small. The same country pattern is observed among urban and rural households, although, in the latter more than in the former, self employment entails a heavy participation in the creation of inequality.

Table 3.8
Basic Income: Decomposition of the Gini Coefficient by Additive factors

Variable and Region	Total Income	Wage Income	Self Employment Income	Property Income	Regular Transfers	Other Income
Country						
-Factor Share	1.00	0.61	0.23	0.04	0.10	0.02
-Factor Gini		0.31	0.37	0.69	0.44	0.62
-Factor Pseudo Gini		0.31	0.37	0.69	0.44	0.63
-Factor Correlation						
Characteristics		1.00	1.00	1.00	1.00	1.02
-Ginii Decomposition	0.36	0.19	0.09	0.03	0.04	0.01
Urban						
-Factor Share	1.00	0.63	0.19	0.04	0.11	0.03
-Factor Gini		0.27	0.40	0.64	0.36	0.56
-Factor Seudo Gini		0.27	0.39	0.63	0.35	0.55
-Factor Correlation						
Characteristics		1.00	0.98	0.98	0.97	0.98
Gini Decomposition	0.33	0.17	0.07	0.03	0.04	0.02
Rural						
-Factor Share	1.00	0.58	0.28	0.03	0.07	0.04
-Factor Gini		0.29	0.38	0.70	0.40	0.64
-Factor Seudo Gini		0.29	0.37	0.69	0.38	0.64
-Factor Correlation						
Characteristics		1.00	0.97	0.99	0.95	1.00
-Gini Decomposition	0.35	0.17	0.10	0.02	0.03	0.03

Source: Estimated with data obtained from the DGSC Income and Expenditure Survey

The fact that none of the factor components directly contribute to equality may sound surprising, specially if one takes into account that some government transfers are inversely correlated with total income. However, it should be taken into account that the transfer component estimated here does not distinguish between pensions and other types of income assistance programs, so that income support payments that are inversely correlated with total family income, are not actually visible in the estimates. Transfers do, however, contribute significantly to reducing the pattern of overall inequality. This contribution will become apparent in the next section and will constitute the subject of further treatment in chapter five.

3.5 The Distribution of the Family Broad Income

We have presented the findings regarding the distribution of Basic Income, i.e., the indicator directly derived from the survey's income definition. We should now turn our attention to the distribution of Broad Income, the pre - fisc income indicator obtained by excluding transfers from the Basic Income.

It is worth noting that the creation of this variable has led to the relocation of families in the deciles that their new income levels would demand. In other words, with the availability of the microdata base, the calculation of the Broad Income indicator has not been simply made at the aggregate level but household by household, allowing each one of

these to take the new position corresponding with their adjusted income level. Thus, the family composition of the Broad Income deciles may not necessarily coincide with that of the Basic Income deciles, which will affect the number of individuals (not the number of families) by deciles and their composition by different classes of income recipients.

The overall pattern of inequality

It can be seen in tables 3.9 and 3.10, just as it was anticipated above, that the exclusion of transfers from the Basic Income substantially worsens the overall pattern of inequality: the country Gini increases from 0.36, reported in the previous section, to 0.39 and the ratio of income share of the top ten percent to the bottom 10 percent rises from 12 to 36 times.

It is interesting to note that notwithstanding the fact that transfers at large, contribute positively to the value of the Gini coefficient of the Basic income, their exclusion provokes a greater polarization of the distribution. Evidently, this is a result of the heavy impact entailed by transfers upon the income of families located in the lowest deciles. In other words, although the absolute value of transfers is concentrated among the richest families, relatively speaking these income flows are more important for the poorest families than for the richest families. This issue will be examined with greater detail in chapter six.

Table 3.9
Broad Income: Family Distribution of Monthly Total, by Deciles and Region, 1988
(millions of Colones)

Deciles	Total Country	Urban	Rural
First	124.2	73.5	61.5
Second	535.1	375.0	217.9
Third	776.0	501.0	308.7
Fourth	992.2	599.1	382.5
Fifth	1,186.5	719.5	488.7
Sixth	1,310.2	877.7	551.6
Seventh	1,661.6	1,124.4	645.8
Eight	2,109.4	1,209.8	763.0
Nineth	2,501.8	1,588.3	960.5
Tenth	4,471.3	2,589.3	1,628.9
Total	15,668.7	9,659.6	6,009.1

Source: DGSC. Income and Expenditure Survey

Table 3.10
Broad Income: Family Distribution of Monthly Total, by Deciles and Region, 1988
(percent)

Deciles	Total Country	Urban	Rural
First	0.8	0.8	1.0
Second	3.4	3.9	3.6
Third	4.9	5.2	5.1
Fourth	6.3	6.2	6.3
Fifth	7.6	7.5	8.1
Sixth	8.4	9.1	9.2
Seventh	10.6	11.7	10.8
Eighth	13.5	12.5	12.7
Nineth	16.0	16.4	16.0
Tenth	28.5	26.8	27.1
Ratio of top 10 percent to bottom 10 percent.	36.0	35.2	26.5
Gini Coefficient	39.0	38.0	37.0

Source: DGSC. Income and Expenditure Survey

at the time of presenting the findings with respect to the distributional impact of public expenditure.

The urban and rural regions show the same distributional pattern observed by the whole country, concerning the exclusion of transfers. However, because the network of pensions systems and income assistance programs tend to be wider in the cities, the impact of this income component is more substantive in the urban than in the rural regions.

Complementary evidence with respect to the impact of transfers on the income of the poorest population is presented in tables 3.11 and 3.12. Family average and per capita Broad Income levels are very much under the reported levels of Basic Income. Furthermore, given the inverse correlation between family income size and number of family members previously reported remains (the lowest decile excepted), these lower income levels imply that the potential consumption possibilities of the poorest population is even greater affected by the combination of inequality, larger family size and greater number of dependents. The relation of the share of income to the share of individuals by deciles, is just 0.1 for the first decile and reaches 1:1 only at the seventh decile, compared with 4:1 for the upper decile (appendix tables III.12 to III.14).

Regional patterns

A more detailed examination of the regional patterns shows again that almost two thirds of the Broad Income compared and only half of the families and individuals are

Table 3.11
Broad Income : Monthly Family Average by Deciles and Region, 1988
 (Colones)

Deciles	Country	Urban	Rural
First	2,001.7	2,335.0	2,032.0
Second	8,656.7	11,906.0	7,234.0
Third	12,567.9	15,876.0	10,249.0
Fourth	16,026.7	19,057.0	12,666.0
Fifth	19,175.4	22,747.0	16,184.0
Sixth	21,301.2	27,750.0	18,238.0
Seventh	26,936.0	35,583.0	21,251.0
Eighth	34,070.0	38,191.0	25,154.0
Nineth	40,629.8	50,406.0	32,055.0
Tenth	72,438.0	82,371.0	54,162.0
Total Average	25,374.0	30,618.0	19,903.0

Source: DGSC. Income and Expenditure Survey

Table 3.12
Broad Income: Monthly Family Per Capita by Deciles and Region, 1988
 (Colones)

Deciles	Country	Urban	Rural
First	503.0	644.0	471.0
Second	1,582.0	2,248.0	127.0
Third	2,391.0	3,137.0	1,880.0
Fourth	3,093.0	3,955.0	2,447.0
Fifth	3,813.0	4,844.0	3,040.0
Sixth	4,594.0	5,929.0	3,654.0
Seventh	5,650.0	7,604.0	4,333.0
Eighth	7,539.0	9,772.0	5,289.0
Nineth	10,736.0	13,444.0	7,340.0
Tenth	22,473.0	27,071.0	16,342.0
Average	5,532.0	7,028.0	4,121.0
Ratio of top 10 percent to Bottom 10 percent	44.7	42.0	34.7

Source: DGSC. Income and Expenditure Survey

concentrated in the urban region (appendix tables III.15 and III.16). However, the disparities of total Broad Income observed in the urban region are greater than in the rural region, evidence of which are Gini coefficients of 0.38 and 0.37, respectively, and income gaps of 35 and 26 times between the top and the bottom deciles, respectively.

In addition, as a result of the unequal regional income distribution, all Broad Income levels by decile are consistently lower in the country - side than in the cities. Appendix tables III.17 to III.19 show that the pattern of increasing number of dependents as the income level declines, commented above for the whole country, also replicates itself in the urban and rural regions, a fact that aggravates even more the situation of the poorest families. It is also clear that at every income level (the first decile excepted) irrespective of the region, more than three out of five income recipients are wage earners. The exception of the first decile is a reflection of the role played by transfers and self employment in supplementing the income of the poorest families.

Income components

Tables 3.13 to 3.15 and appendix tables III.20 to III.22 summarize the findings regarding the composition and distribution of the Broad Income by factors. With the elimination of transfers, the distinctive presence of wages as a component of income is now

Table 3.13
Broad Income: Country Monthly Family Distribution by
Deciles and Factor Components, 1988
 (Millions of Colones)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Other Income
First	124.2	61.5	47.4	9.3	6.0
Second	535.1	352.5	158.5	12.4	11.6
Third	776.0	558.7	196.3	7.0	14.1
Fourth	992.2	724.0	237.8	12.8	17.9
Fifth	1,186.5	916.5	237.6	12.4	20.1
Sixth	1,310.2	998.8	248.7	28.8	34.1
Seventh	1,661.6	1,206.6	390.4	30.3	34.2
Eighth	2,109.4	1,478.6	535.9	57.0	37.9
Nineth	2,501.8	1,879.4	455.4	85.6	81.4
Tenth	4,471.3	2,404.0	1,409.6	327.0	330.7
Total	15,668.7	10,580.6	3,917.6	582.6	587.9
Ratio of top ten Percent to Bottom 10 Percent	36.0	39.1	29.7	35.2	55.1

Source: DGSC. Income and Expenditure Survey

Table 3.14
Broad Income: Urban Monthly Family Distribution
by Deciles and Factors Components, 1988
(Millions of Colones)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Other Income
First	73.5	44.2	16.8	9.9	2.7
Second	375.0	297.7	64.1	6.3	6.8
Third	501.0	359.2	122.1	10.6	9.2
Fourth	599.1	467.8	107.5	10.7	13.1
Fifth	719.5	572.7	104.7	23.5	18.5
Sixth	877.7	656.1	191.3	18.3	12.1
Seventh	1,126.4	844.4	240.8	24.3	17.0
Eighth	1,209.8	936.7	189.6	42.6	40.8
Nineth	1,588.3	1,199.8	288.4	64.1	35.9
Tenth	2,589.3	1,436.2	778.2	215.7	159.1
Total	9,659.6	6,814.9	2,103.5	425.9	315.2
Ratio Top ten Percent					
Bottom ten Percent	35.2	32.5	46.3	21.8	58.9

Source: DGSC. Income and Expenditure Survey

Table 3.15
Broad Income: Rural Monthly Family Distribution
by Deciles and Factor Components, 1988
(Millions of Colones)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Other Income
First	61.5	25.8	29.2	3.0	3.4
Second	217.9	132.0	77.6	3.2	5.0
Third	308.7	211.2	89.5	2.4	5.6
Fourth	382.5	252.4	119.2	3.6	7.3
Fifth	488.7	357.2	119.5	3.1	9.0
Sixth	551.6	412.9	124.2	2.8	11.7
Seventh	645.8	483.6	142.9	4.4	14.9
Eighth	763.0	524.8	206.1	12.0	20.1
Ninth	960.5	606.7	309.8	25.6	18.4
Tenth	11,628.9	759.0	596.1	96.7	177.1
Total	6,009.2	3,765.7	1,814.1	156.7	272.7
Ratio of top ten Percent to Bottom ten Percent	26.5	29.4	20.4	32.2	52.1

Source: DGSC. Income and Expenditure Survey

emphasized: two thirds of total income is originated by wages, followed by self employment income (25%), property and other income representing jointly only nine percent. The importance of wages increases in the middle of the distribution (deciles three to nine) where they come to represent three quarters of total Broad Income.

Property income and other forms of income reflect the strongest upper end concentration (Gini's of 0.64 and 0.61) while wages is the less unequally distributed factor (0.36). This is also applicable to the distribution pattern observed in the cities and the rural areas. As previously noted, this evidence suggests that in the short and medium term, a good income distribution policy should necessarily focus on a strong wage, employment and training policy and not necessarily on a better distribution of physical wealth. In the final analysis, in terms of consumption potentials, in the absence of perfect markets, what counts is the flow of income derived from the stock of wealth either in the form of wages or profits and not the possession of wealth itself.

Decomposition of inequality

The participation of each factor in the overall degree of inequality is presented in table 3.16. All income components are positive contributors to inequality, i.e., they are all correlated with total family Broad Income. However, because of its greater relative weight,

Table 3.16
Broad Income: Decomposition of the Gini Coefficient by Additive factors

Variable and Region	Total Income	Wage Income	Self Employment Income	Property Income	Other Income
Country					
-Factor Share	1.00	0.67	0.25	0.04	0.04
-Factor Gini		0.36	0.43	0.64	0.61
-Factor Pseudo Gini		0.36	0.42	0.63	0.61
-Factor Correlation					
Characteristics		1.00	0.98	0.98	1.00
-Gini Decomposition	0.39	0.24	0.10	0.03	0.02
Urban					
-Factor Share	1.00	0.71	0.22	0.04	0.03
-Factor Gini		0.34	0.45	0.58	0.57
-Factor Seudo Gini		0.34	0.44	0.58	0.56
-Factor Correlation					
Characteristics		1.00	0.98	1.00	0.98
Gini Decomposition	0.38	0.24	0.10	0.02	0.02
Rural					
-Factor Share	1.00	0.63	0.30	0.03	0.04
-Factor Gini		0.33	0.41	0.67	0.64
-Factor Seudo Gini		0.33	0.41	0.67	0.64
-Factor Correlation					
Characteristics		1.00	1.00	0.99	0.99
-Gini Decomposition	0.37	0.20	0.12	0.02	0.03

Source: Estimated with data obtained from the DGSC Income and Expenditure Survey

the major contribution to the overall degree of inequality comes from wages (62% of the overall Gini), followed by self employment income (25% of total Gini). Despite the strong disparities shown by property income and other income, each one represents just about six percent of the Gini's value. The pattern is very similar in the urban region, while in the rural areas, wages lose some ground and the contribution of self employment significantly increases.

At all levels, factorial and regional, the factor correlation characteristics are not only positive but practically similar to the unity, i.e., the pseudo Ginis are essentially identical to the actual Ginis. This is a reflection of the fact that the rank distribution of each factor component resembles that of the overall income distribution.

Under these circumstances, the weighted value of each of the actual factor Ginis may represent a good approximation of the decomposition of the Gini coefficient and, therefore, the estimation of the pseudo Ginis is likely not to reveal additional information of interest. However, it is still useful to present these results as an introduction to the exercises that follow in the chapters ahead. For the benefit of interpretation and analysis of the addition and subtraction of tax and expenditure components to the Broad Income indicator, the decomposition of the resulting coefficient of disparity will be helpful.

Summary of Findings

To summarize the major findings of this chapter: Broad Income is more unequally distributed than Basic Income. This reflects the important relative impact of transfer upon the income of the poorest families. The polarization of Basic Income is greater in the cities than in the rural areas but the opposite occurs with Broad income.

The consumption possibilities of the poorest population is not only negatively affected by the unequal income distribution but also by the larger size of their families and the larger number of dependents, as compared with the wealthiest families.

Wages are the most important component of income, at all levels and for every region, and wage earners are the most significant income recipients or generators. For the same reason, the analysis of disparities by factor components indicates that wages are the principal factor contributing to total inequality.

This chapter concludes the examination of the pre - fisc income distribution. In the next two chapters, the issue of the impact of taxes and public expenditure upon this pre - fisc distribution will be addressed. For this purpose both Basic Income and Broad Income will be used as counterfactual indicators. The Adjusted Broad Income distribution will be introduced and analyzed in chapter six, simultaneously with the examination of the combined impact of taxes and public expenditure.

CHAPTER 4

THE DISTRIBUTION OF THE TAX BURDEN

In Chapter 3 the income size distribution before the incorporation of the public budget was studied. This chapter introduces, for the first time, one side of the public budget - the taxation side - and examines its composition, distribution and incidence.

The exercise presented in this chapter seeks to contribute to the stock of knowledge on the characteristics and development implications of the Costa Rican tax system. For this purpose, a set of indicators on the distribution of the tax burden by income brackets, as well as on the incidence of tax payments and the overall redistributive consequences of the Costa Rican tax system, is built and assessed.

The analysis first proceeds with an examination of the set of taxes under study and the magnitude of the tax collections. After this, the tax shifting models and assumptions are discussed. Later, the distribution of the tax burden by income brackets is evaluated. The chapter comes to a conclusion with the development of an after - tax size distribution of income, based on the income concepts introduced in the previous chapter.

4.1 The Selection of Taxes and the Magnitude of Tax Collections

The set of taxes used in the study and their corresponding revenue yields have been constructed and consolidated with the help of information produced by the Ministry of Finance and the Comptrollership - General of The Republic. The difficulties in carrying out this consolidation cannot be understated: although a few taxes generate most of the revenues of the Costa Rican government, the list of existing taxes in this country is strikingly extensive. As the IMF mission examining the Costa Rican tax system in 1990 has put it,

"Considering that Costa Rica is a relatively small country, the complexity of its public finance system is somewhat striking. As a matter of fact, to find other countries - regardless of size or degree of economic development - with a more complex system would be difficult. This Complexity stems from the extraordinary high number of taxes, the proliferation of special incentive systems, the vast number of activities of the public sector and the fragmentation [of the public sector] to accomplish these activities..."¹

Fortunately, in this investigation we were able to benefit from an initiative undertaken by the Ministry of Finance at the end of the eighties, the purpose of which was to organize and consolidate the fiscal accounts. Starting with figures of 1988, this initiative was instrumental for the construction of our estimates.

¹International Monetary Fund, Costa Rica: El Sistema Tributario (The IMF: Washington, April 1990) p. 2.

Tables 4.1 and IV.1 of the appendix summarize the results. The total amount of tax collections in 1988 reached 77.4 billion colones (aprox. US\$ 1 billion) , representing 22% of Costa Rica's GDP, 37% of Basic Income or 47% of Broad Income.² Almost one third of this amount is produced by social security contributions, which include payments for the national Health Insurance and the Disability, Aging, and Death Pension Fund (IVM), both administered by the Costa Rican Bureau of Social Security (CCSS), the state agency in charge of providing curative medicine. These compulsory payments, made by workers and employers on the basis of the size of individual salaries and the total amount of payrolls, in combination with the subsidy of the public sector, finance a universal coverage medical system and a partial coverage (only for contributors) retirement fund.

The general sales tax and the prevailing set of selective excise taxes follow in importance with 18% and 16%, respectively, of overall collections. Import duties represent 13 % of this total, whereas export taxes - principally collected on coffee and bananas - and the corporation income tax, amount to less than 8 % each. Personal income taxes represent a slim 3% followed by taxes imposed on the possession of vehicles (2%). Property taxes rank last, with just less than 2% of the total. In sum, of the overall tax

²It is worth noting that in the case of developing countries, this overall measure of tax burden can be misleading. As McLure has noted, non tax policies, very common in LDC's, may impose a heavy burden on producers and consumers, but they are not part of this global indicator of tax burden. Naturally, the strong presence of this type of policies, would also severely affect the whole tax incidence exercise. See Charles McLure, Jr, "Fiscal Policy and Equity in Developing Countries" in Policy Reform and Equity, edited by Elliot Berg (San Francisco: The international Centre for Economic Growth, 1988) pp. 13 - 42.

Table 4.1
Costa Rica: Tax Revenues by Category, 1988
(Millions of Colones and Percents)

Tax Revenue Category	Amount	Percent Share
Total	77,408	100.0
Social Security Contributions	24,368	31.5
General sales Tax	13,562	17.5
Selective Excise Taxes	12,605	16.3
Import Duties	9,799	12.7
Corporation Income Tax	5,824	7.5
Export Taxes	5,790	7.5
Personal Income Taxes	2,482	3.1
Vehicle Taxes	1,676	2.2
Property Taxes	1,302	1.7

Source: Table IV.1

collections, almost one third falls on payrolls, one third on domestic sales, one fifth on international trade, one tenth on income and the remaining 4% on vehicles and real property.

This composition of the Costa Rican tax structure, heavily tilted towards payrolls, domestic and international transactions and weak on incomes and property, is typical of developing countries.³ This is, to a large extent, explained by the poor controls that tax administrations have on the income generation process and the possession of wealth. In addition there is a weak social conscience with respect to the responsibility of contributing to the financing of collective undertakings. Generally speaking, evasion does not entail the highly reproachable social misconduct connotation that it has in developed countries. Rather, it is frequently regarded as a form of smart, although illegitimate, financial behavior.⁴ Under these circumstances, the easiest way of producing revenues is by taxing the transactions of goods and, if possible, services.

The strong dependency of the central government revenues on the taxing of goods and services is even more evident if social security contributions are excluded from total

³See for instance Javad Kahlilzadeh - Shirazi and Anwar Shah, Tax Policy in Developing Countries, (Washington, D.C.: The world Bank, 1991). pp. xv - xxvi.

⁴This is the result of the absence of what may be called a tax payment culture and of the presence of lenient penalties for tax evasion. These latter weaknesses have been recently dealt with in some developing countries (Mexico, for instance), by introducing the jail penalty for evasion. There is a lot of controversy as to whether jail should be used to deal with this type of social misconduct. The evidence shows that because of its long term implications, courts tend to be extremely cautious to give this sort of penalty to implicated people. At any rate, tough penalties, improved controls and the existence of a tax payment culture are certainly indispensable components of a better tax collection policy.

tax collections: 80% of revenues are originated by taxes on the transaction of goods and services, while only 16% arise from levies on income. The remaining percent represents the burden of taxes on property.

This dependency is reinforced by the existence of a number of tax incentive systems which were originally designed to stimulate investment in sectors such as tourism, exports and forestry, but that have turned into major instruments of revenue leakage.⁵ Furthermore, since the revenues so generated are associated with the importation of goods and services, the trade liberalization steps that the country has been vigorously taking over the past twelve years, have also been continuously undermining the collections, therefore imposing an increasing pressure on the fiscal stability of the country.

It is important to examine each of the tax categories presented in tables 4.1 and IV.1 of the appendix. Social security contributions are raised on the basis of tripartite payments made by workers, employers (including the public sector) and the state itself.⁶ For medical insurance coverage, workers contribute with 5% of their salaries, employers with 9.5% of their respective payrolls and the state with 1.25% of the overall amount of

⁵These problems were to a significant extent corrected in 1992, with the issuing of the "Regulating Law on all the in force Tax Exemptions", whereby a great number of tax exemption systems were suppressed. However, various, perhaps unjust, and fiscally expensive instruments, such as the Tax Credit Certificates (CAT) and the tax credit for investments in tourism projects protected by tourism contracts, are still in place.

⁶Naturally, these being consolidated figures, the portion paid by the state has been fully subtracted from the total. The percentage participation of the state is given just as a reference.

the salaries earned by workers covered by this insurance. For the pension fund, the respective payments are at the rates of 2.5% of salaries (workers), 4.75% of the payrolls (employers) and 0.25% of overall wage payments (the state). This important component of total government revenues is the source of financing of a social security system rated among the best in Latin America.⁷ However, during recent years, the demographic changes that the country has been going through, are gradually imposing new and difficult pressures on this system, to the point of jeopardizing its stability. This issue will be dealt with again in the next chapter, at the time of addressing the expenditure side of the budget.

The second revenue category is the general sales tax. This value - added - type tax, levied on goods and some services at a uniform rate of 10%, is the most important individual piece of tax collection of the central government.⁸ Although the base is supposed to be general, as normally occurs with this type of tax, a great number of goods and, above all, services are excluded from the base. As a matter of fact, while the incumbent legislation sets forth that this tax is applicable to all goods, with some listed exceptions, it specifically rules that it is to be applied only to some listed services, the majority of them being excluded. In other words, it is in principle a sales tax of wide spectrum for goods and of restrictive coverage for services. Naturally, the source of

⁷See for instance Juan Jaramillo, Los Problemas de la Salud en Costa Rican (San Jose, Litografia Ambor, 1984) pp. 2 - 5 and Inter American Development Bank, Socio Economic Report of Costa Rican (Washington: The IDB, 1992)pp. 183 - 191.

⁸In September 1995, the rate was increased to 15% for 18 months. After this it will decline to 13 percent.

potential expansion of the base are the services, especially those provided by liberal professionals. However, various attempts to do so over the past years have proven unsuccessful, due to pressures of the affected interest groups.

There are no available estimates on the degree of evasion affecting this tax, but the general belief is that evasion is high. However, since an adequate data base of taxpayers is not developed and good controls are not imposed, the actual amount of evasion can not be fully substantiated.⁹

The next item in table 4.1 is excise taxes. Under this heading, for convenience, we have put the selective consumption tax, together with official stamps and other consumption taxes. The selective consumption tax covers such a wide range of products that some regard it as a disguised complementary sales tax. However, it presents a number of differences with respect to the latter. First, it applies exclusively to goods. Second, the rates are differentiated by categories of goods, ranging from 10% to 65%. Third, the rates can be set directly by the central government, whereas the sales tax rate

⁹It is interesting to note that, as a rule of thumb, in developing countries a yield of the sales tax equivalent to 50% the value of the tax rate, measured against the GDP is considered a parameter of good performance. For instance, in the case of Costa Rica, at the time that this study was being undertaken and until the end of 1995, the tax rate was 10%, which means that the parameter of good performance would be 5% of GDP. Over those years, this was precisely the percentage yield that the sales tax generated, which may suggest that evasion is not as high as might be expected. And despite the final figures of 1996 are not yet available, it can be concluded that this performance has improved, for although the tax rate was increased to 15% (50% above the previous rate), during 1996 the tax yield has been growing at an annual 85% rate (gross of inflation, estimated at 15%).

should be decided by the Legislative Assembly. And fourth, it is collected at the producers and customs level.

Despite the extensive list of products affected by this tax, almost 90% of the domestic collections stem from the levies on tobacco, beer, liquor, soda and clothing.¹⁰ This is why it has been thought that the simplification of the Costa Rican tax system must contemplate the elimination of the majority of the remaining product categories that are affected by this tax. However, due to the flexibility of this important revenue source and in the presence of chronic fiscal imbalances, the government has so far resisted this idea.

To complete this heading, official stamps refers to the large number of stamps issued by the government to collect taxes on legal documents. These stamps act as official fees for legal transactions and produce revenues that are in the majority of cases, earmarked. The group of other consumption taxes encompasses a long list of minor taxes applied to a variety of goods or activities. They have arisen at the initiative of small interest groups or respond to some past circumstances that no longer exist, in all cases normally with an earmarked end. The administration of all of these minor taxes is very loose, which is quite understandable, considering the low yield of many of them. As part of the simplification of the tax system, the government has proposed the elimination of a number of these taxes, including several stamps, that together represent a revenue of less

¹⁰These are historical averages. Cigarettes are currently not yielding high revenues, due to a price war that the domestic producers have held for some time. If total collections (from imported and domestic goods) are taken as a base of reference, the importation of vehicles generate more than 40%, and this together with the above mentioned products, account for 75% of the total.

than 0.3% of the total. This simplification will help to concentrate resources on the important sources of revenue and reduce compliance costs.

Concerning import duties, despite the trade liberalization policy and the annual curtailing of import tariffs that the government has been gradually implementing, import duties still represent a significant percent of total revenues. With the course being set towards the creation of a freer and less protected domestic market, the projection is that this source will produce less revenues in the future. However, this does not mean that customs will become irrelevant as a point of revenue generation for the government. The reason is that approximately one half of the sales and selective consumption taxes are collected on imports.

With respect to the corporation income tax, this is applied at a 30% single rate.¹¹ However, small enterprises receive a special treatment, their rents being taxed at rates of 10 and 20 percent. The tax system in Costa Rica allows for what has been called double taxation, i.e., in addition to the corporation income tax, dividends are also taxed when received or paid and no tax credits are granted to either the corporation or the stock owner for this concept. Among income taxes, the corporation tax is the highest yielding one. However, one of the major causes of the revenue erosion concerning this tax is the treatment of interest. Interest payments can be fully deducted with no limits set to the rates applied to the obligations and the legislation does not stipulate any asset revaluation

¹¹This rate structure has been in effect since May 1988. Before this, partnerships and corporations were taxed on the basis of a tax schedule ranging from 10 percent to 50 percent.

system.¹² Thus, in circumstances of high domestic interest rates, as has occurred over the past five years, if assets are not reevaluated the tax base is rapidly eroded. Naturally, a corollary to this problem is that corporations tend to prefer financing via lending instead of capitalization, a choice which is re-enforced by the taxation of dividends.

With regards to export taxes, primarily levied on coffee and bananas, their unstable yield is notable. Taxes on coffee - traditionally the single commodity most heavily taxed - are applied at the stages of production, processing and commercialization. There are essentially two taxes, the rates of which, based on progressive formulas, are associated with the international price level. The tax on coffee received by the mills is zero at a free-on-rail price below \$1 per pound and gradually increases above this limit, up to a maximum 10% at prices of \$1.3 or more per pound. The rate of the ad valorem tax is zero at international prices below \$0.92 per pound and increases to a maximum of 18% at prices above \$1.91 per pound.¹³ On the other hand, bananas are affected by various taxes applied at the commercialization stage. The burden is not as high as it has historically been in the case of coffee, but banana taxes have not escaped from the

¹²At the end of 1995 a regulation to limit the deduction of interest to 50% of total costs was introduced. Beyond this percentage, a special report should be filed. It remains to be seen how this regulation will operate in the 1996 fiscal year.

¹³With the sharp and surprising coffee price increase that occurred in the first half of 1994, these rate structures were fiercely challenged by coffee producers and exporters, who claimed them to be outrageously high and confiscatory, an episode that led them to an angry confrontation with the government, as traditionally happens when the prices of this commodity suffer a significant change. As a result of this confrontation, in 1995 the coffee export tax system was replaced by a withholding income tax to be paid by coffee producers. The new scheme reduced the burden of taxes on this commodity. As of 1996, specifically applied to exports, only a 1.5 percent advalorem tax remains.

pattern of disputes between government and exporters associated with the conditions prevailing in the international market.¹⁴

As for other exports, while traditional commodities are heavily taxed, non - traditional exports receive the benefits of export contracts and tax credit certificates. Export contracts grant income tax exemption to revenues originating from non traditional exports to markets other than the Central American region, and duty exemptions to imported inputs used in the production of this non traditional exports. For its part, the tax credit certificates support exporters by providing them with a subsidy equivalent to a fixed percent of the export value. This certificate can be used to pay off tax obligations. Other goods not covered by these privileges are subject to a minor export tax applied at ad valorem rates of 1% to 6 percent. Individually considered, the yield of these latter taxes is relatively low.

Under the heading on Personal Income Taxes we have included a number of items which can be examined separately. The tax on interest income, the highest revenue yielding concept under this heading, is applied at a rate of 15% if the financial instrument (certificate of deposit, promissory note, etc.) is not listed on the stock exchange and at a rate of 8% if it is listed or has been issued by a financial institution regulated by the superintendence of financial institutions. The tax on dividends is applied at a rate of 15% if the stock is not listed and of 5% if it is listed. The tax on income for self employment

¹⁴In any case, it should be noted that the situation of the Costa Rican coffee and banana producers in the international market is very different from each other: while the former operate in a market where the country is a micro producer, the latter enjoy the advantage of the country being one of the world most important suppliers.

is based on a marginal rate scale with values ranging from 10% to 25%. Labor income has two brackets of 10% and 15% tax rates each.¹⁵ Finally, levied on all paid lottery prizes there is a tax of 6%, which in reality is incorporated into the ticket price, i.e., not actually paid by the winners but distributed among all lottery buyers. Therefore, intended as a tax on income, it actually operates as a tax on consumption.

As can be deduced from these various forms of treatment of personal income, the personal income tax in Costa Rican is based on the itemized income principle, as opposed to the global income principle. Each income source is treated separately according to specific regulations and rates, instead of being globalized into a single measure of income. In addition, the majority of the liabilities are collected through final withholding, i.e., the tax is collected at the source according to the above stated rates and no refunds are granted thereafter. An exception to this rule is the case of the self employed, who has to pay according to his declared taxable income or in conformity with a government stated presumptive rent.

The tax on the property of vehicles is next in the table. Applied at rates ranging from 1% to 2%, this tax sets minimum and maximum amounts that can be charged to the owners of vehicles. It is a relatively low revenue yielding tax, specially during recent years, because the limits to the absolute amount of the tax that has to be paid per vehicle have not been changed in many years and cannot be modified by the administration.

¹⁵These rates were in effect as of May 1988. Previous to this, the rates for both labor and self employment ranged from 5% to 50 percent.

Last in the table is the property tax. Based on the overall value of the properties owned by the taxpayer, this tax is applied according to a progressive marginal scale that ranges from 0.30% to 1.05 percent. Although it is administered by the central government, it is the main source of financing of local governments: the former takes only 8% of the collections. The strikingly low yield of this tax is the result of a combination of causes. The administration system is weak, the data bases are incomplete and outdated, and the beneficiaries - the local governments - rarely participate in the collection and administration processes.¹⁶ However, the single most important cause for this poor performance is the lack of an updated tax base; to be more specific, the property values in many cases observe lags of up to several years and even decades. There have been a number of efforts intended to resolve this problem, through mass assessments, value adjustment tables and the like, but they have all failed, perhaps due to the lack of perseverance, the lack of organization and initiative of local governments and the general syndrome of fragility of the Costa Rican tax administration system. Which ever the case may be, the importance and potential of this tax cannot be underestimated: as a major financing source of local governments, it is fundamental for the strengthening of

¹⁶At the end of 1995 major steps to address these problems were undertaken. A new property tax law passed on the responsibility for tax collections to the municipalities, the tax rate was set at 0.80% and the responsibility for the updating and administration of the tax base - the property values - was left in the hands of the central government for five more years. After this, the municipalities are expected to assume complete command of the administration of this tax. It is interesting to note that the government has underlined the importance of the participation of local governments in the collection process, but has insisted in keeping the property assessment task centralized, to ensure uniformity in the treatment of taxpayers.

community initiatives and, therefore, for the promotion of a balanced social, political and economic development of the country.

4.2 The Tax Model and the Tax Shifting Assumptions

We have discussed the amount, composition and characteristics of the estimated tax collections during the period of reference. The final impact point of this burden, i.e., its economic incidence, should now be investigated.

As already explained, to accomplish this objective basically two alternative approaches can be followed. One is to use an explicitly defined and estimated general equilibrium incidence model. The other, based on the stock of available theoretical knowledge, is to resort to the method of the implicit general equilibrium model, elicited through a set of assumptions regarding the incidence of each of the taxes under study. This latter approach, as has already been said, is the one adopted in this thesis.

Before discussing the specific incidence assumptions used to distribute the taxes under consideration, it is useful to recall the characteristics and conclusions of the models upon which they are based.

*The Incidence Model and The Standard, Progressive
and Regressive Scenarios*¹⁷

As Dahlby has summarized it, the extent to which a tax is shifted depends on the elasticities of supply and demand, the mobility of the factors, the time framework, the degree of competition in the market of concern, the extent of the tax base, and the manner in which the government's budget constraint is altered when a tax is imposed.¹⁸ In order to deal with the variety of possible incidence patterns, a set of standard assumptions and a complementary set of alternative assumptions were developed. These assumptions are essentially derived from the conclusions of the Harberger model and its extensions and coincide at large with the assumptions normally used in studies of the kind.¹⁹ The standard assumptions are based on the perfectly competitive market structure, while the set of alternative assumptions intend to reflect the optional views on the subject, in

¹⁷We use the terms regressive, proportional and progressive in their strict technical sense. A series of rates that increase (are constant, or decrease) as income increases, is said to be progressive (proportional or regressive), whether they refer to taxes or public expenditures. Hence, a progressive tax distribution means that taxes paid as a percentage of income increase as income increases, and a progressive public expenditure distribution means also that the benefit of public expenditures as percentage of income increase as income increases. Thus, a progressive tax distribution is income equalizing, while a progressive public expenditures distribution contributes to the concentration of income.

¹⁸Bev Dahlby, "Payroll Taxes", in Business Taxation in Ontario, edited by Allan M. Maslove (Toronto: University of Toronto Press, 1993), pp. 99

¹⁹The Harberger model has already been presented in chapter 2. See the section 2.1.3.1. for a discussion of its assumptions, conclusions and limitations.

response to the existence of non - competitive conditions, factor mobility restrictions and informational constraints.

The bases of the Harberger model were discussed in chapter 2. As it may be recalled from this discussion, the Harberger model is originally built upon the following fundamental assumptions: fixed factor supply, full employment, perfect factor mobility, price flexibility, and perfect competition.²⁰ The model has been extended to investigate the implications of changes in the assumptions.²¹

Table 4.2 illustrates the general conclusions of the extended model as well as the consequences of introducing alternative assumptions. In short, the general conclusions of the Harberger model are the following: taxes on only one use of a mobile factor lead to output and factor substitution effects which have ambiguous results, but they may end up in the sharing of tax burdens by all owners of the taxed factor; taxes on all uses of one factor or the use of an immobile factor tend to be borne by the owners of these factors; partial excise and factor taxes do affect the allocation of resources and the relative prices; and general sales taxes do not affect the allocation of resources and are borne in

²⁰Ibid.

²¹See Charles E. McLure, Jr., "The Theory of Tax Incidence With Imperfect Factor Mobility", Finanzarchiv (Vol. 30, 1971), pp.27 - 48, "Tax Incidence, Macroeconomic Policy, and Absolute prices" Quarterly Journal of Economics, (Vol.84, May 1970), pp. 254 - 277, "General Equilibrium Incidence Analysis" Journal of Public Economics (Vol 4, 1975), pp. 125 - 161, "A Simplified Exposition of the Harberger Model" National Tax Journal (Vol. 28, No.1, March 1975), pp. 1 - 27, and Peter M.Mieskowski, "On the Theory of tax Incidence" Journal of Political Economy, (Vol. 75, June 1977), pp.250 - 262, and "Tax Incidence Theory: The Effect of Taxes on the Distribution of Income" Journal of Economic Literature, (Vol. 7, December 1969), pp.1103 - 1024.

Table 4.2
The Harberger Model: Predicted Incidence Patterns

Type of Tax	Standard Case	Other cases
1. Tax on one factor in sector (K in X)	<p>Perfect mobility, perfect competition, constant returns of scale, fixed factor supply. Two factors, L and K, w is return to L, r is return to K. Two sectors X and Y; X is L intensive. Full employment, identical consumption patterns.</p> <p>The price of X will increase relative to Y. Resources will be reallocated from industry X to industry Y.</p> <p>Sources side Two Effects will arise: Output Effect and Factor Substitution Effect.</p> <p>Output Effect: Refers to changes in the production structure and the effect on r/w of reallocation of resources from one sector to another. In this example, the reallocation of K and L from X to Y will tend to cause r/w to rise, for X will release L faster than it can be absorbed by sector Y. The price of L falls relative to K. The opposite would occur if X were K intensive.</p> <p>Factor Substitution Effect: Concerned with factor substitution resulting from relative factor price changes. That is, with movements off the contract curve resulting from distortions in the factor market. In this example, K will flow out of X and into Y, until the net return is equalized in the economy. In other words, the ratio r/w will fall until the net after tax return to K is the same in both sectors</p> <p>The overall impact of the tax on K will depend on the relative strength of the output and factor subs. effects. In this example, both effects act in opposite directions and therefore the final result is ambiguous. If X were K intensive, they would reinforce each other and the result would be unambiguous: r/w would fall. The burden would fall on K.</p> <p>Uses side Since the price of the taxed factor increases in the taxed sector, the price of the goods produced by this sector increases. Therefore, consumers who spend a high share of their income on goods produced by this sector will be worse off.</p>	<p>Taxed factor immobile, other mobile Other assumptions remain</p> <p>The price of X will increase relative to Y. Resources will be <i>partially</i> reallocated from industry X to industry Y (i.e., only K is transferred).</p> <p>Sources Side</p> <p>Output Effect: The reallocation of K from X to Y will tend to cause r/w to rise in X, for L becomes relatively abundant in this sector. The opposite occurs in Y, where K becomes relatively abundant and the ratio r/w tends to fall.</p> <p>Factor Substitution Effect: Since K becomes more expensive in X, L will be substituted for K in X. Thus, K will flow out of X and into Y, until its net return is equalized in the economy. The ratio r/w will rise in X and fall in Y until the net after tax return of K is the same in both sectors.</p> <p>The net return of K is equalized in both sectors. However, as a result of the immobility of L, this factor becomes relatively abundant in X and the ratio r/w in X rises. Thus, the burden of the tax on K is partially shared by factor L.</p> <p>Uses side Since the price of the taxed factor increases in the taxed sector, the price of the goods produced by this sector increases. Therefore, consumers who spend a high share of their income on goods produced by this sector will be worse off.</p>
	<p>Sources Side The taxed factor, Because K is immobile its return may diverge in its various uses. A partial tax on K in X is borne entirely by this factor in this use.</p> <p>The same factor used in other sectors suffers no burden.</p> <p>Other factor.</p>	<p>Sources Side The taxed factor, Because K is immobile its return may diverge in its various uses. A partial tax on K in X is borne entirely by this factor in this use.</p> <p>The same factor used in other sectors suffers no burden.</p> <p>Other factor.</p>
	<p>The net return of K is equalized in both sectors. However, as a result of the immobility of L, this factor becomes relatively abundant in X and the ratio r/w in X rises. Thus, the burden of the tax on K is partially shared by factor L.</p>	<p>The taxed factor absorbs the tax in the taxed sector.</p>
	<p>Uses side Since the price of the taxed factor increases in the taxed sector, the price of the goods produced by this sector increases. Therefore, consumers who spend a high share of their income on goods produced by this sector will be worse off.</p>	<p>Uses side There are no price changes. The taxed factor in the taxed sector assumes all the costs. There are no uses side effects.</p>

Table 4.2
Continued, page 2

Type of Tax	Standard Case	Other cases
2. Tax on one factor in all sectors (L in both sectors)	<p>Perfect mobility, perfect competition, etc.</p> <p><u>Sources Side</u> No pressures for intersectoral movements. There is only one net price of the taxed factor for the entire economy. The owners of the taxed factor (L) bear the full burden. (However, if the taxed factor is not fixed but variable in supply, it may be able to shift the burden. This depends on the elasticity of supply of the taxed factor, the elasticity of substitution between L and K, and the elasticity of demand for the good that uses more intensively the taxed factor.)</p> <p><u>Uses Side</u> Since neither the gross price of the taxed factor nor the gross price of the untaxed factor change, the price of the products do not change. There are no uses side effects. The general factor tax is neutral from the uses side.</p>	<p>Taxed factor immobile, other mobile. Other assumptions remain.</p> <p><u>Sources Side</u> Same. Result is robust.</p> <p><u>Uses Side</u> Same result is robust.</p>
		<p>Taxed factor immobile, other mobile. Other assumptions remain.</p> <p><u>Sources Side</u> Same. Result is robust.</p> <p><u>Uses Side</u> Same result is robust.</p>
3. Tax on one (good (X) (Equivalent to a tax on all factors in sector X))	<p>Perfect mobility, perfect mobility, etc.</p> <p><u>Sources Side</u> Both factors flow out of the taxed sector until net returns are the same in both the taxed and the untaxed sectors. However, since X is L intensive, L will be released more rapidly than K. Therefore, the ratio L/K will have to increase. In general a tax imposed on the output of an industry will cause a reduction in the relative price of the factor used relatively intensively in the taxed industry. Thus, in this example the tax burden will fall on L income. (However, if the supply of L is not fixed but variable, the impact on L is reduced.)</p> <p><u>Uses Side</u> The price of the taxed good will increase in proportion to the tax. The tax will be borne by consumers of the taxed good, in proportion to their consumption of the good.</p>	<p>One factor mobile, other immobile. Other assumptions remain.</p> <p><u>Sources Side</u> The part of the excise which resembles a tax on the immobile factor, reduces the net return of this factor in the taxed sector. The return of this factor in the untaxed sector is unchanged. This result is quite general, regardless of the form of the production function.</p> <p>The part of the excise which resembles a tax on the mobile factor induces a flow of this factor out of the taxed sector, until the return of this factor is the same in both sectors. Because of the immobility of one factor, the ratio of the return of the mobile factor to the return of the immobile factor in the taxed sector (X) rises. Therefore, the mobile factor does not bear the full burden of this part of the excise tax. It is partially shared by the immobile factor.</p> <p><u>Uses Side</u> Since part of the tax is absorbed by the immobile factor in the taxed sector, the pressure on relative prices is less than in the complete mobility case, coming only from the increase in the gross price of the mobile factor. Thus, effects on the uses side upon the distribution of income are less than in the complete mobility case.</p>
		<p>One factor mobile, other immobile. Other assumptions remain.</p> <p><u>Sources Side</u> The part of the excise which resembles a tax on the immobile factor, reduces the net return of this factor in the taxed sector. The return of this factor in the untaxed sector is unchanged. This result is quite general, regardless of the form of the production function.</p> <p>The part of the excise which resembles a tax on the mobile factor induces a flow of this factor out of the taxed sector, until the return of this factor is the same in both sectors. Because of the immobility of one factor, the ratio of the return of the mobile factor to the return of the immobile factor in the taxed sector (X) rises. Therefore, the mobile factor does not bear the full burden of this part of the excise tax. It is partially shared by the immobile factor.</p> <p><u>Uses Side</u> Since part of the tax is absorbed by the immobile factor in the taxed sector, the pressure on relative prices is less than in the complete mobility case, coming only from the increase in the gross price of the mobile factor. Thus, effects on the uses side upon the distribution of income are less than in the complete mobility case.</p>

Table 4.2
Continued, page 3

	A. Factor prices are flexible downwards Other assumptions of Standard Case remain. 1/	B. Factor prices are not flexible downwards. Expansive macroeconomic policy, to allow for an increase in general price level. Other assumptions of Standard Case remain 1/
	Sources Side	Sources Side
3. Tax on all Goods	Equivalent to a tax on all sources of income, i.e., a tax on all factors in all sectors. Relative prices are not affected	There are no relative factor price changes, for there are no changes in gross returns. Therefore, there are no factor reallocations and no distributional effects on the sources of income side
	No factor reallocations.	However, there is a general increase in output prices.
	The tax is borne in proportion to the shares in national income.	
	Uses Side	Uses Side
	Since there are no factor reallocations and no change in output prices there is no redistribution on the side of uses of income.	Since there is a general increase in output prices, and no change in gross returns of factors, the tax is borne in proportion to total consumption.

1/ These particular cases explored by McLure, Jr. and Thirsk (1975) are interesting for their implications regarding the choice of tax distributors. Since in Harberger income equals consumption, these cases are equivalent. In other words, the combined incidence effects on the sources and uses sides are unaffected by the change in assumptions. A more complete treatment of these cases can be found in McLure, Jr. (1970)

Sources: Charles E. McLure, Jr. and Wayne R. Thirsk, "A Simplified Exposition of the Harberger Model 1: Tax Incidence" *National Tax Journal*, (Vol. XXVIII, No. 1, March 1975). Robin W. Boadway and David E. Wildasin, *Public Sector Economics* (Toronto: Little, Brown and Company, 1984) Chap 12, Charles E. McLure, Jr. "The Theory of Tax Incidence With Imperfect Factor Mobility" *Finanzarchiv* (Vol. 30, 1971), pp. 27-48, Charles McLure Jr., "General Equilibrium Incidence Analysis, *Journal of Public Economics* (Vol. 4, February, 1975), pp. 125-161, Charles McLure Jr., "Tax Incidence, Macroeconomic Policy and Absolute Prices", *Quarterly Journal of Economics* (Vol. 84, May 1970), pp. 254-277, Peter M. Mieszkowski, "On the Theory of Tax Incidence", *Journal of Political Economy* (Vol. 75, June 1977), pp. 250-262. Peter M. Mieszkowski "Tax Incidence Theory: The Effects of Taxes on the Distribution of Income" *Journal of Economic Literature* (Vol. 7, December 1969), pp. 1103 - 1034.

proportion to the shares of national income or consumption. These, at large, are the basic tenets of the incidence model applied in the thesis and therefore, of the set of standard assumptions and their variants.

In contrast to the original Harberger model, though, the standard case assumes that capital is internationally mobile, while land and labor are immobile. The implications of this assumption are discussed in the next section. The variants of the standard case are employed to test the sensitivity of the results to changes in the assumptions, in response to the characteristics of the Costa Rican economy or to reflect alternative views on the incidence of certain controversial taxes. They introduce conditions such as imperfect factor mobility, imperfect competition and price inflexibility.

The sensitivity analysis or, in other words, the formulation of the standard case and the alternative cases can be better illustrated by examining the treatment given to social security contributions and the corporate tax.

As will be seen, in the case of social security contributions the high mobility and elasticity of capital and the relative inelasticity of labor can cause both the employer's and the employee's portions of the payroll tax to be borne by labor. As will be examined shortly, theory and empirical results tend to lead to this conclusion. This result is reflected by the standard assumption. However, if market imperfections prevail (e.g., unions may be unwilling to accept wage cuts), or if capital is not as elastic as assumed in the standard model, employers may not be able to shift the burden of their portion of the

payroll tax to labor. It may well be passed on to consumers or absorbed by profits.²²

This possible change in the initial assumptions of the standard case leads to a more regressive variant in which the burden is passed on to consumers, and a more progressive variant in which the burden is absorbed by employers.

Another example is the corporate tax. According to the Harberger model and its particular assumptions, the tax on capital in the corporate sector will tend to be borne by capital at large.²³ Further, as will be seen in the next section, in the context of a small open economy framework, the portion of the corporate tax rate above the international rate will be borne by the immobile factor, labor. These conclusions are represented by standard model.

However, as above, market imperfections may prevent capital owners from shifting the burden to labor. Because of this, the burden may well be shifted forward to consumers (the regressive variant) or absorbed by capital at large (the progressive variant).

In sum, the study presents results for a standard scenario and two alternative cases: progressive and regressive. The progressive case encompasses a set of assumptions that, compared with the standard case, cause the tax burden to be more heavily distributed among higher income families. The regressive case produces the opposite effect. Naturally, as it will be seen later, the changes depend on the characteristics of the taxes

²²See Musgrave and Musgrave Public Finance in theory and Practice (McGraw - Hill, Fourth Edition, 1984 .) pp.495 - 497.

²³Some of the burden may fall on consumers and other factors of production, depending on the factor elasticity of substitution, the price elasticity of goods, the factor shares and the factor intensities.

under consideration, i.e., on elements such as their design, the factor or products they affect, and the nature of the market in which they operate.

The Size and Openness of the Economy

The incidence assumptions presented in this thesis are developed within a *small open* economy framework. The use of this framework emphasizes two elements: first, it recognizes the fact that Costa Rica operates in the international market, and second, it qualifies the size of the country. In particular, the *open* economy framework implies that Costa Rica is seen as participating in a world economy “consisting of a number of nations, each with a separate monetary system, a separate government system...devoted to providing pure public goods and mixed public goods, a degree of immobility in some factors of productions across national boundaries, and some specific restrictions on such factor flows (for instance, immigration policies that limit the labor flows, customs tariffs..., and taxes on some income flows).”²⁴ On the other hand, the *small* economy assumption indicates and recognizes that Costa Rica does not exert a dominating role in world markets.

²⁴W.I.Gillespie, op.cit. pp. 15. As Gillespie indicates, since the objective of the work is to study the incidence of Costa Rican tax and expenditure policies only, it is legitimate to exclude the domestic implications of tax and expenditure actions undertaken by the rest of the world. It is assumed that all goods are tradable.

As G. C. Ruggeri et.al. have noted, one of the implications of the use of the small open economy framework is that it prevents the existence of deviations between the domestic and the international rates of return to capital.²⁵ The reason is that given the current development of world capital markets, in an open economy it is normally assumed that capital is perfectly mobile, which tends to generate a perfectly elastic supply of capital in the domestic economy. In terms of incidence analysis, the result is that domestic taxes on capital above the average world tax rate are not borne by capital, but shifted to labor and land, which are assumed to be the immobile.²⁶

It is worth noting that the rate of tax on capital can be decomposed into two parts: the portion that is equal to the world rate of tax and an excise tax (or subsidy) that represents the differential of the domestic tax rate from the world rate. According to the Harberger model, the burden of the first portion would fall on capital owners, because it would represent a common rate of tax on all uses of a factor. However, as has been indicated above, the burden of the portion above (below) the world rate would fall on labor and land, the immobile factors, as capital would flow out of (into) the domestic economy until the net of tax returns are equalized world - wide.

²⁵G.C. Ruggeri, D. Van Wart and R. Howard. "The Redistributive Impact of Taxation in Canada", Canadian Tax Journal (Vol. 42, No.2) pp. 448.

²⁶In consistency with this result, taxes on capital below the world rate would lead to a flow of foreign capital into the country. This, in turn, would make capital relatively more abundant, push its relative price downwards and improve the relative price of labor. Thus, a capital tax rate below the average world rate would entail a benefit to labor.

A second important characteristic of the small open economy framework is that since domestic producers do not dominate world markets, they act as price takers, i.e., they must accept international price levels for the commodities that are traded internationally. Again, in terms of incidence analysis, this implies that taxes on exports above the average world rate cannot be shifted forward to foreign consumers.²⁷ As consequence, under the small open economy assumption, such export taxes must be borne by domestic factors of production. And given the high mobility of capital assumption, they must primarily be borne by the immobile factors, labor and land.

In sum, the small open economy framework affects the patterns of tax incidence in two ways: first, it prevents the formation of gaps between the domestic and the international net of tax rate of return to capital, and second, it assumes that the country accepts international price levels for the goods and services it may trade in the international market, i.e., it limits to the price of tradable goods and services to their corresponding world prices. As a consequence, taxes on capital and taxes on exports above the average world rates, are shifted backwards to the immobile domestic factors of production.

The above are the general features of the case experiments to be presented. In the sections that follow, prior to the examination of the major findings of the study, a detailed

²⁷ibid.

discussion of the assumptions used in each one of the taxes under consideration will be made.²⁸ These assumptions have been summarized in table 4.3.

4.2.1 Social Security Contributions

Social contributions - or payroll taxes as they are more commonly known - are, as we have seen, the major revenue source of the Costa Rican government.

There is little controversy regarding the incidence of the portion of the payroll tax paid by workers directly. The general opinion is that the burden falls on the workers themselves.²⁹

The difficulties arise in connection with the burden of the portion paid by employers. In this respect, while there is a widely held view that employers manage to shift the burden, opinion as to whether it falls on consumers in the form of higher prices or on workers in terms of lower wages is divided.³⁰ However, more experts seem to be

²⁸In these sections some ad - hoc references to the literature of tax incidence are made. However, for an extended review of this literature see chapter 2.

²⁹W.I. Gillespie, op. cit. p. 49, George Break, The Incidence and Economic Effects of Taxation op.cit. p.168, Frank Vermaeten, W.I. Gillespie and Arndt Vermaeten, "Tax Incidence in Canada" Canadian Tax Journal (Vol 42, No.2) p 366, Edgar Browning and William Johnson, The Distribution of the Tax Burden (Washington: American Enterprise Institute for Public Policy Research, 1979) pp. 31 - 32.

³⁰George Break, op. cit., pp.165 - 166, Edgar Browning, "The Burden of Taxation" Journal of Political Economy (Vol. 86, No. 41, 1978.) p. 665. Bev Dalhlby, op.cit., pp. 96 - 133.

Table 4.3
Costa Rica: Tax Incidence Assumptions

Tax Category	Assumptions		
	Standard Case	Regressive Case	Progressive Case
Social Security Contributions	Both Employee and Employer Portions Borne by Employees	Borne half by employees and half by consumers	Borne half by employees and half by capital
General Sales Tax	Borne by Consumers, excluding tax exempted goods.	Borne by Consumers, excluding tax exempted goods.	Borne by Consumers, excluding tax exempted goods
Selective Consumption Taxes	Borne by Consumers of Specific Goods (Beberages, Liquour, Tobacco, Vehicles,etc)	Borne by Consumers of Specific Goods (Beberages, Liquor, Tobacco,etc)	Borne by Consumers of Specific Goods (Beberages, Liquor, Tobacco,etc)
Other Sales Taxes	Borne by Consumers	Borne by Consumers	Borne by Consumers
Import Duties	Borne by Consumers	Borne by Consumers	Borne by Consumers
Export Taxes	Borne by labour	Borne by labour	Borne half by labour and half by capital
Corporate Tax	Borne half by capital and Half by labour	Borne half by capital and half by consumers	Entirely borne by capital
Interest and Dividends Tax	Borne by Recipients of Interest and Dividends Income	Borne by Recipients of Interest and Dividends Income	Borne by Recipients of Interest and Dividends Income
Labour Income Tax	Borne by Tax Paying Workers	Borne By Tax Paying Workers	Borne By Tax Paying Workers
Lottery Prizes Tax	Borne by all Income Recipients	Borne by all Income Recipients	Borne by all Income Recipients
Vehicles Tax	Borne Half by Vehicle Owners and Half by Consumers	Borne Half by Vehicle Owners and Half by Consumers	Borne Half by Vehicle Owners and Half by Consumers
Property Tax	Entirely Borne by Capital Owners	a)Borne Half by Property Owners and Half by Renters b) Borne Half by Property Owners and Half by Consumers	Entirely Borne by Capital Owners

persuaded by the thesis - and the evidence supporting it - that the burden falls completely on workers. For instance, in a recent study of payroll taxes in Ontario, Canada, the author concluded that "the basic demand and supply model predicts that labor bears around 90 percent of the burden of the EHT [Employment and Health Tax], given the current state of knowledge concerning the aggregate elasticities of demand and supply of labor in a western developed economy".³¹ This finding is also confirmed by econometric studies on the subject for the same country, for "they suggest that labor bears over 80 percent of the employers' payroll tax burden in the long run".³² Arguments in this direction have also been given by Musgrave and Musgrave and specially by John Brittain, who has been particularly influential in the discussion on the theory and evidence supporting the assumption that the tax is entirely borne by employees.³³ In sum, both theory and empirical results are in support of the conventional practice of assuming that payroll taxes are borne by labor, regardless of whom the tax is levied on.

³¹See Dahlby, op.cit. pp. 108

³²Ibid, pp.133

³³For an argument in this direction see Musgrave and Musgrave Public Finance in theory and Practice (McGraw - Hill, Fourth Edition, 1984 .) p.496. Also, a very influential discussion on the theory and evidence supporting the assumption that the tax is entirely borne by employees is given in John Brittain, The payroll Tax for Social Security (Washington D.C. : Brooking Institution, 1972). For empirical applications of this assumption see Gillespie, op.cit. p. 50, Vermaeten et al., op.cit., p.366, Browning and Johnson, op.cit., p.31, Joseph Pechman, Who Paid the Taxes? (Washington D.C.: The Brooking Institution, 1985.) p.31 and Morgan Reynolds and Eugene Smolensky Public Expenditure, Taxes and the Distribution of Income (London: Academic Press, 1977) p. 49.

Upon these bases and considering that capital has been taken to be more mobile than labor and therefore that it is in the position to shift the cost of social security contributions, the standard case presented in this thesis assumes that payroll taxes are entirely borne by workers. Thus payroll taxes have been distributed by the series of wages and salaries, corrected by the series of actual payments of social security.

This standard case is not exempted of caveats. As Dahlby has noted, the model upon which it is based assumes perfect competition in the labor market, but wages are often determined by negotiations between employers and labor unions.³⁴ Likewise, the model assumes wage flexibility, but in the short run wages may be fixed. If so, an increase in the payroll tax would have a greater impact on employment rather than on income, compared with the prediction of the competitive model. In this same sense, firms may not reduce their wages in the presence of an excess labor supply, in order to avoid labor turnover, prevent decline in employee moral and reduce shirking by employees. Because of this, the burden of the tax borne by labor may be lower than that predicted by the standard case.³⁵

These caveats have provided the basis for the specification of two additional experiments: one with a progressive bias, based on the assumption that these payments are evenly borne by workers and capital owners. The other with a regressive bias, according to which they are borne by workers and consumers in equal proportions. In the first case the contributions are distributed by wages and capital income, while in the

³⁴Bev Dahlby, *op.cit.*, pp. 108 - 13

³⁵See also R.Musgrave and P.Musgrave (1984), *op.cit.* p.497.

second the allocation is made with the series of wages and income and general consumption expenditures.

4.2.2 The General Sales Tax

It is the broadly held opinion that within a general equilibrium framework, a general sales tax is to be borne by consumers. Some analysts believe this to be a consequence of the increase in the general price level that the imposition of the tax brings about. However, in reality the essence of this shifting conclusion is not actually associated with an eventual change in the general price level but rather with the change in the relative prices that is imposed by a change in the sales tax.³⁶

The reasoning can be unfolded by means of a tax differential incidence analysis, involving a general sales tax and a general income tax. As Musgrave has shown, on the uses - side of the budget, consumers are considered worse off with respect to savers if a general income tax is replaced by an equal yield general sales tax.³⁷ Since both taxes reduce all factor rents in equal terms, this substitution is neutral on the sources sides. But, it is not neutral on the uses side, for the prices of consumption goods increase relative to the prices of tax - free capital goods. This change in relative prices causes the real income

³⁶George Break, op.cit. p. 175 - 6.

³⁷Richard Musgrave, Teoria de la Hacienda Publica (Madrid: Aguilar S.A. , 1969 .) pp. 400 - 404.

of savers to increase with respect to that of the consumers, leaving the latter in a worse off situation.

Hence within a general equilibrium framework, and through the change in the relative prices of consumption and capital goods, the differential burden of the general sales tax is borne by consumers.³⁸

This analysis has been challenged by Browning and by Browning and Johnson. In particular, these authors argue that any uses side effects of the sales tax largely disappear when one employs a measure of permanent (or lifetime) income, because consumption as a share of permanent income does not vary much by income class.³⁹ In other words, savers who are relatively lightly taxed today under the sales tax will be relatively heavily taxed tomorrow when they consume from their saving. On the sources side, the authors point out that since transfers commonly are indexed for inflation, only factor income can bear the burden.

Thus, in Browning and Johnson's view, it is incorrect to use the consumption series to distribute the tax burden: rather, the burden should be allocated according to factor earnings. Given that transfers tend to be concentrated among lower - income families and savings among higher - income families, Browning and Johnson's analysis therefore implies that the sales tax is not regressive, as has been suggested by more traditional analyses, but rather progressive.

³⁸See also Gillespie, *op.cit.* p. 41.

³⁹Edgar Browning, *op.cit.*, p. 651 - 658 and E.Browning and W.R. Johnson,*op.cit.* pp.27 - 29

This view is not fully convincing. On the one hand, the full indexation of transfers does not rule out the above explained relative price effects and that, in any case, transfers are not actually the only source of income that is normally indexed, meaning that if an adjustment for indexation is made, a correction for transfers would only be a partial correction.⁴⁰ On the other hand, despite the interesting issue raised by the observation concerning the relative constancy of the consumption - income ratios by permanent income class, the use of this income definition for the treatment of this particular case would be inconsistent with the rest of the work. Consistency requires that a permanent or annual income definition is used throughout the study to derive comparable results. The use of a permanent income concept and of permanent income - consumption ratios would be perfectly compatible with a lifetime incidence study. This, as has been already explained, is not the approach of this work.

In light of the above comments, to develop the standard case I have distributed the burden of the general sales tax according to the series of general consumption outlays. No alternate experiments were undertaken, for this choice reflect what seems to be a very much established theoretical conclusion and expert praxis concerning the incidence of this tax.⁴¹

⁴⁰Frank Vermaeten et al., op.cit. p. 365

⁴¹For studies using this assumption see, for instance, David C. Davies "An Empirical Test of Sales Tax - Regressivity", Journal of Political Economy (February, 1959), p. 72 - 79, W.I. Gillespie, op.cit, Frank Vermaeten et.al op. cit, Morgan Reynolds and Eugene Smolensky, op.cit., Joseph Pechman, op.cit. and Joseph Pechman and Benjamin Okner, op.cit. In addition to this established practice, it is also worth noting that in the case of

However, it should be noted that the series of consumption outlays reported in the survey was subjected to important and careful adjustments, to allow for the fact that almost five hundred categories of goods are exempted from the sales tax. On the basis of a recent study by C. Conejo, M. Gutierrez and R. Mora and data provided by the survey, the categories of goods included in the tax exempted basket were identified and excluded from the consumption plans of the households to obtain the desired sales tax distributors.⁴²

The exemptions obviously make no distinction whatsoever by buyers, but the goods covered, such as breads, meats, rice, milk, fruits, vegetables, coffee, school uniforms, medicines, books, and the like, represent an important proportion of the consumption outlays of lower income groups. The end result - and purpose of this mechanism of exemptions - is that the burden of the sales tax upon the lower income groups is mitigated. In fact, when adjusting the series of consumption outlays to account for this mechanism, the most important impact takes place in the first decile.

Costa Rica the Browning argument loses ground, due to the fact that transfers are not actually indexed to the price level but to salaries.

⁴²Carlos Conejo, Miguel Gutierrez, Ronald Mora, El Impuesto de Ventas en Costa: opciones de exenciones de gasto y su impacto en la equidad y la recaudacion, segun el consumo de los hogares (mimeo, February, 1995).

4.2.3 Excise Taxes

While a general sales tax does not introduce changes in the relative prices of different consumption goods, a selective consumption tax does. The traditional view of a selective excise tax is that the consumers of the taxed good would bear the burden.⁴³

In a general equilibrium framework, the excise tax entails effects on both the uses and the sources sides of income. On the uses side, the tax increases the price of the good produced by the affected industry, relative to the price of non - taxed goods. This will directly harm the consumers of the taxed good, and lead to a chain of indirect price effects involving the non - taxed goods. The demand for products complementary to the taxed good will decline while the demand for competitive products will grow.

The incidence of the tax will depend on the location of the consumers of the affected goods within the income distribution structure. Naturally, if they tend to be located in upper (lower) levels, the incidence on the uses of income side will be progressive (regressive). On the sources of income side, the tax will cause a decline in the output of the affected industry. As output decreases, some of the factors of production will be laid off and seek employment in the untaxed sectors.

The net impact on relative factor incomes will depend on whether the taxed sector is relatively more capital - intensive or more labor intensive than the untaxed sector. If it

⁴³See Richard Musgrave, op.cit. p. 378 - 9, and Gillespie op.cit. p.44 - 5.

is more capital intensive, the relative return to capital will tend to fall. Otherwise it will tend to rise.

The final distributional impact of these effects is uncertain, for the location of the owners of the factors involved in the production of taxed and untaxed products cannot be anticipated. As Musgrave has put it, rich people can produce necessities while poor people produce luxury goods.⁴⁴ To arrive at a reasonable conclusion it is necessary to resort to the assumption that the relation between the size distribution of income generated by a product and the size distribution of income received by the people that consume this product, follows a random pattern. Alternatively one may assume that the size distribution of income is approximately similar in all industries.⁴⁵ Under these circumstances, the uses side effect prevails and, therefore, the impact of the tax is on the consumers of the affected goods.

Based on these arguments, I have assumed that selective consumption taxes fall on the consumers of the taxed goods and distribute them according to the series of consumption expenditures on these specific goods, reported by the survey. In addition, given the generality of the other two taxes that for matter of convenience are grouped under the heading of excise taxes - official stamps and other consumption taxes - , the series of general consumption outlays was used to distribute them by income brackets.

⁴⁴Ibid, p.379.

⁴⁵Gillespie, *ibid*.

4.2.4 International Trade

There are two types of taxes on international trade: on imports and on exports. Import taxes affect a great quantity of goods in Costa Rica. Originally designed for fiscal purposes, the tariff structure evolved during the sixties and seventies to become a protective barrier against foreign production, the industrial sector being the most important subject of this protection.⁴⁶

For both reasons, fiscal and protective, tariffs have affected a wide lists of goods. increasing the price of both domestic and imported production. In effect, generally speaking, a tariff may allow the domestic producer to increase his price to the level of the price plus the duty of the imported competing production. Thus, in the final analysis, tariffs raise the domestic price of all goods, whether they are imported or produced locally and hence government revenues, implying that the burden of tariffs tend to be shifted to consumers at large.

Furthermore, the extent to which the cost of the barrier is expected to be widely absorbed by domestic agents is greater the wider the coverage of the barrier. Likewise, more are expected to directly pay the barrier, the higher the imported component of goods traded in the domestic market. In the case of Costa Rica, the tariff structure is very comprehensive, protecting industrial and many agricultural commodities. In addition,

⁴⁶For a comprehensive study on the structure of effective protection to the industrial sector see Marvin Taylor, La Estructura de Proteccion Efectiva al Sector Industrial Costarricense (San Jose: Disegraf, 1984).

imports represent a large proportion of the good locally traded - almost 40% of the GDP during the eighties - a proportion that is on the rise, as the level of tariffs continue to decline, in conformity with the trade liberalization policy that the government has been implementing.⁴⁷

On this basis I consider it reasonable to assume that import duties are directly or indirectly paid by the majority of the Costa Rican consumers. In other words, it is reasonable to take the view that import duties behave as a tax on all goods, or a general commodity tax. Hence, I have assumed that these duties are borne by all forms of consumption and have distributed them by general consumption outlays.

With respect to export taxes, as has been said, given Costa Rica's characteristics of a small open economy, the capacity of the country to shift forward these taxes to foreign consumers is null or limited.

Because of their importance, export taxes on bananas and coffee deserve some further comments. The question about these taxes is whether they are applied at a rate above, below or similar to the common world rate. Producers would be able to pass forward to consumers the share of the taxes on these commodities, up to the common

⁴⁷As for the tariff levels, it must be said that in 1986 the country initiated a major reform of the structure of protection. Import quotas were eliminated and a tariff reduction program was initiated. As a result of this program, current tariffs have a maximum of 20% and a minimum of 5%, down from levels in many cases above 100 percent. See for instance IDB, Socio Economic Report of Costa Rican, op. cit. p. 174.

world rate. Differentials in excess of the common world rate would be borne domestically by the immobile factors of production.⁴⁸

To determine the tax differentials we examined the policies of the major world producers and compared them with the Costa Rican practice. With respect to bananas, in Costa Rica the major tax is applied at a rate of US \$0.30 per box, compared with US \$0.50 in Honduras, US \$0.60 in Guatemala, US \$0.34 in Panama (until the end of 1995) and zero in Ecuador and Colombia. Given these parameters it is difficult to determine what share of the burden, if any, the taxing countries can pass on to foreign consumers. In my judgment, since two leading world producers and at the same time highly productive countries, such as Colombia and Ecuador, impose no taxes on their bananas, the entire Costa Rican tax rate (as well as the entire rate of the other taxing countries) is above the world rate and therefore it cannot be shifted to foreign consumers. Thus, as standard position I assume that in the long run the tax is borne domestically by labor, the least mobile factor of production.

In the case of coffee, as was explained above, until very recently taxes were set by means of a complex system based on the international price of the commodity. For the year of reference, the resulting effective ad valorem export tax rate of 17.5 percent was

⁴⁸ In consistency with this result, taxes on exports below the world rate (a subsidy) would lead to an increase in the *after-tax* price of the commodity, an initial increase in the returns to capital, an inflow of capital into the country, an increase in the hiring of labor and an increase in the relative price of labor with respect to capital. Thus, an excise tax rate below the average world rate would entail a benefit to labor. See the section on size and openness of the economy. This is the pure excise tax effect commented on in this section.

most likely above the world rate. For instance, in Colombia, a major world producer, there is an ad valorem tax rate of only 3.5 percent.⁴⁹ As an approximation, the world rate is taken to be zero, and therefore the entire burden is assumed to be shifted backwards to labor, the more immobile factor of production.

In sum, to produce the standard case, export taxes, which are primarily levied on agricultural export commodities, have been assumed to be borne by labor and have been distributed by the series of labor payments. A more progressive case has been developed, by assuming the existence of some rigidities in the mobility of capital. In this case, capital is assumed to bear one half of export taxes, the remaining portion staying put with labor.

4.2.5 The Corporation Income Tax

As was indicated in chapter 2, perhaps no other tax is more controversial than the corporation income tax. Two key studies on the matter have been to a large extent at the center of this controversy. While upon the basis of a highly competitive model and perfect mobility of factors Harberger concluded that the corporation tax is borne

⁴⁹In reality this tax in Costa Rica has more closely resembled an income tax than an export commodity tax, for the effective contribution of coffee producers to the former has been minimal. In fact, in 1995 the export tax was explicitly transformed into a withholding income tax, and the export tax rate was reduced to an advalorem rate of 1.5 percent

primarily by the owners of capital, regardless of the sector where they are investing, the empirical investigation of Musgrave and Krzyzaniak has led to support the conclusion of a full shifting of the tax to the consumers.⁵⁰ The studies and exchanges of views that have followed these two pieces of work have added more to the controversy than to the clarification of these opposite views.

The introduction of non - competitive elements to the model, such as imperfect factor mobility, and non - profit maximizing behavior by the firms, may also introduce greater complexity in the analysis as well as important changes in the conclusions.⁵¹ This is the case when elements such as imperfect factor mobility are introduced, under which circumstances the burden is likely to rest on the shareholder and not on capital at large, or when assumptions of behaviors such as mark - up pricing and constrained profit maximization or of circumstances such as price controls or black markets are introduced.

In spite of the above conceptual controversies, most incidence studies tend to subscribe to the view that the corporation tax falls on the owners of capital at large. As has been seen, this conclusion stems from the fact that under perfect factor mobility, in response to the imposition of a corporation tax, capital would flow from the corporate sector into the non - corporate sector, bringing down the net return in the latter, until such return is equalized in both sectors. As well, the tax is likely to entail an effect on the uses

⁵⁰ Arnold Harberger, " The Incidence of the Corporation Income Tax" Journal of Political Economy, Vol. 70 (June 1962), pp. 215 - 240 and Marian Krzyzaniak and Richard Musgrave The Shifting of the Corporation Income Tax: An Empirical Study of its Short - Run Effect Upon the Rate of Return (John Hopkins Press, 1963).

⁵¹ George Break, op.cit. pp. 141 - 149.

side, but considering the absence of evidence on to the amount that consumers spent on goods produced by the corporate sector vis - à - vis goods produced by the non - corporate sector, the uses side effect is customarily ignored.

According to the discussion of the incidence models above, two additional elements must be taken into consideration to predict the impact of the corporation tax. One is the relation between the tax rate in the corporate sector vis - à - vis the tax rate in the non - corporate sector. As explained above, in the face of capital mobility, the differential in the tax rate would be shifted from the corporate to the non - corporate sector, via flows of capital from the former to the latter, until it is borne equally by all capital owners.

The second element is the relation between the tax rate in Costa Rica vis - à - vis the tax rate prevailing in the rest of the world. Given the high mobility of capital, domestic tax rates above the international rate cannot be borne by this factor: they have to be borne domestically by the immobile factors.⁵²

Regarding the first element, when examining the Costa Rican case, it must be noted that the corporate and the personal tax are not fully integrated. "A fully integrated corporate income tax is one that, through devices such as gross - up and credits and full

⁵²As may be recalled, a capital tax rate below the average world rate would entail a benefit to labor. See the section on size and openness of the economy above.

capture of capital gains income, results in all earnings generated through corporations being taxed at the personal income tax rate of the individual owner.”⁵³

In Costa Rica, profits of large corporations, if retained, are taxed at 30%, the rate applicable to both large corporations and partnerships in Costa Rica, the primary juridical forms of business organization in the country in terms of volume of operations (these two forms represent 97% of the taxes paid by business organizations).⁵⁴ Once profit are distributed, corporations should withhold 15% (or 5% in qualified cases) of paid dividends on behalf of the stockholders and partnerships have to withhold 15% of the net income considered to be the participation of partners.

Compared to the above treatment, since the global income principle is not applied in Costa Rica, all other forms of capital income (net interest, rental income, profits from other non - corporate enterprises) are taxed at specific rates but certainly are not taxed twice as in the above case.

Under these circumstances, it is evident that the corporate income tax introduces an important intersectoral tax rate differential. Thus, following the conclusions of the Harberger model, the standard assumption maintains that this tax differential has led to flows of capital from the corporate to the non - corporate sectors, until the net returns to capital in the economy were equalized, independently of the juridical forms of

⁵³F. Vermaeten, W.I. Gillespie and A. Vermaeten (1994), *op.cit.* p. 363.

⁵⁴The tax reform of May 1988 established a unique income tax rate of 30 percent for large corporations and partnerships. Small businesses are taxed at rates of 10 and 20 percent, depending on their size. Before this, there was a marginal income tax scale ranging from 10 percent to 50 percent.

organization adopted by capital owners. Therefore, the standard assumption maintains that the corporate tax is borne by capital at large.

Concerning the second element (the relation between the Costa Rican rate and the world rate), to estimate the differential tax rate we examined the results of studies on the effective rate on capital calculated for Canada and the United States and compared these rates with the figures corresponding to Costa Rica. In a recent study Sabourin, Gribble and Wolfson have estimated that the effective tax rate to applied Canadian corporations is 18.4%.⁵⁵ In addition, Mckenzie and Mintz have concluded that the overall effective tax rates are very similar in Canada and the United States.⁵⁶ On the other hand, a rough estimate for Costa Rica suggests that the effective tax rate, as defined by Sabourin et.al., was 36% in 1988, i.e, twice as high as in Canada and the United States.⁵⁷ On the basis of these results, we have assumed that the differential tax burden with respect to the common world burden, i.e., 18 percent, stays in Costa Rica and is passed on to the least

⁵⁵David Sabourin, Stephen Gribble, and Michael Wolfson, "Ontario's Corporate Income Tax: an analysis of effective tax rates", in Business Taxation in Ontario, Allan Maslove, editor (Toronto: University of Toronto Press, 1993) pp. 48, table 2 and p. 51, table 4. These authors define the effective tax rate as the ratio of tax paid to income, where the denominator refers to benchmark income. The latter is defined as book profit before both current, deferred income taxes, and indirect taxes, less transfers and intercorporate dividends.

⁵⁶Kenneth J. Mckenzie and Jack M. Mintz, "The effects on the Cost of Capital", in Canada - US Tax Comparisons, edited by John B. Shoven and John Whalley (Chicago: The University of Chicago Press, 1992), pp. 211, 214.

⁵⁷The 1988 tax reform brought down this rough estimate to around 25 percent - only five to six points above Canada and the US - effective as of 1989.

mobile factors of production. That is, it is specifically assumed that half of the amount of the corporate tax is borne by labor.

In sum, the standard case assumes that half of the corporation tax is borne by capital and the distribution is made according to the series of capital income, and that the other half is borne by labor, the distribution being made according to the series of labor income. To test the sensitivity of this case and to take into account the above controversies, two alternative experiments were undertaken: a) a slightly more regressive one, in which half of the tax was distributed according to the series capital income and half in agreement with the distribution of general consumption outlays, instead of labor income, and b) a progressive one, according to which 100 percent of the tax is allocated in conformity with the distribution of capital income, meaning that because of price rigidities, market restrictions, incomplete capital mobility, corporations are unable to shift the tax to other factors of production or consumers.

4.2.6 Personal Income Taxes

It was seen that under the personal income tax heading we have included taxes on interest and dividends, labor income, self employment income and income obtained from lottery prizes. Although an income tax entails sources and uses side effects, its primary impact is on the sources side of the household account. The key element determining the shifting of the tax burden is the elasticity of supply of the income source. The more

elastic the factor causing the income flow, the greater its ability to shift the burden to the rest of the community. Thus, some knowledge of these elasticities is needed to predict the possible shifting behavior of the tax under consideration. Regrettably, research on this subject is not available in Costa Rica. An analytical consideration of the issue is therefore called for.

The analysis may follow the list of income categories presented in table 4.2. The first category is interest and dividends. This income category is the product of savings. The question is therefore whether the supply of savings is affected by the existing income tax. If the quantities of savings are relatively fixed and a tax is levied on their returns, the net value of these returns would decline exactly by the same amount of the tax. On the other hand, the tax will be shifted in variable proportions if the supply shows some sensitivity to changes in the net return. In other words, under the assumption that the supply of savings is not affected by the income tax, the tax on interest and dividends is unlikely to be shifted to the rest of the community. This assumption is certainly debatable; however, most scholars tend to hold that such view is a good approximation to reality, it being of general application in incidence studies.⁵⁸ In the absence of empirical studies on the Costa Rican case that would allow us to debate this view, it has also been adopted in this thesis. Thus, taxes on interests and dividends are here assumed to stay with the recipient of such income, the corresponding payments having been allocated in accordance with the distribution of interest and dividends.

⁵⁸See references regarding empirical studies in chapter 2.

Concerning labor and self employment income, as it is known, the elasticity of supply will be determined by the combined results of the income and substitution effects.

While the income effect will stimulate the provision of more hours of work in response to decreasing net prices of labor, the substitution effect will push toward the enjoyment of more hours of leisure. However, considering, on the one hand, that this is a general tax and therefore that workers can not escape it by changing employment and, on the other, that once in the labor market the number of work hours are regulated by law, the supply of labor is likely to be inelastic to changes in its net price originated by the income tax.⁵⁹

Under these circumstances, workers would be unable to shift the burden of the personal income tax to the buyers of labor or to any other member of the community.⁶⁰ According

⁵⁹If the tax applies only to some occupations, there would be two labor supply curves: one responding to the changes in the tax and another remaining unaffected by these changes. The total supply curve would be expected to vary in response to the distribution of workers among the two markets. A general tax reduces the margin for this variability.

⁶⁰The presence of unions and the behavior of workers that belong in the upper income brackets may be considered as two important elements of an imperfect market to take into account for a study of the Costa Rican case. Unions may be able to shift the taxes to employers by demanding a higher pay, and the employers in response may pass the tax to the consumers. However, if unions tend to negotiate wage conditions on the basis of the pre - tax income, as it seems to be the case in Costa Rican, where unions are more interested with factors such as adjustments for inflation or devaluation, the possibilities of for the tax to be shifted are less likely. On the other hand, at the upper end of the salary scale, one may expect that the employees are definitely concerned with net payment and therefore with the shifting of taxes to the employer. However, the way that this may be done is difficult to establish because compensation to executive employees do not tend to be related to the time they devote to their work, nor it is likely in the form of a salary, but rather of multiple compensation mechanisms associated with the quality of the work they perform. For this reason, even if one may strongly suspect some shifting of the tax toward the employers, it is hard to conclude whether the shifting is done by working less hours - in which case there may not necessarily be a productivity cost - or by negotiating

to this view, it has been assumed that the personal income tax is borne by the tax payer and has been therefore distributed according to the series of direct tax payments.⁶¹

The last personal income tax category refers to lottery prizes. Given the way that the relatively low yielding tax on this concept is collected (see section 4.2) and assuming that the buyers of lottery tickets are distributed proportionately to every income bracket, the tax payments have been conjectured to be neutral.⁶²

4.2.7 Vehicle and Property Taxes

The tax on the property of vehicles will affect the cost of transportation in general. Thus, not only it will increase the cost of mobilization of individuals that use the vehicle

with the employer an after tax compensation. Considering these comments, the no shifting assumption of the tax on labor is here taken with no qualifications.

⁶¹It may be thought that the situation of the self employed individuals is somewhat different, for within reasonable ranges, they are likely to shift part of the income tax to their clients. In the absence of maximum fee regulations, liberal professionals such as lawyers, medical doctors, financial and economic consultants and the like, may raise their fees to compensate for tax increases. In other words, just as an enterprise is concerned with the after tax income produced, the self employed individual is likely to be concerned with the after tax income received, and will probably set his fees accordingly. To reflect the likely partial shifting of the tax burden, it may have been appropriate to use a complementary indicator, such as general consumption outlays. However, this was not done for we consider that the collections of this tax are so small - just 0.2% of the total - that they did not warrant a singular treatment. We therefore chose to treat them in conjunction with the rest of the labor income tax.

⁶²There is no evidence on the distribution of lottery buyers by income class in Costa Rica. In any case, given the small magnitude of this tax category, any other assumption would not affect the overall results of the study.

for personal purposes, but also the transaction cost of goods that need to be transported. Thus, the burden of this tax has been assumed to fall in equal proportion on the owners of vehicles and on consumers, the corresponding payments having been distributed according to the series of property of vehicles and general consumption outlays.

The distribution of the property tax is somewhat more controversial. The traditional view holds that the burden of a tax on unimproved land falls on the land owner, while that of a tax on improvements falls on the direct users of the property (tenants) or on consumers (in case of business property). The reason is that land is a factor in fixed supply, whereas capital - used for investing in construction and improvements - is a highly mobile factor. Considering that a high proportion of the value of properties is in the form of construction and improvements, as opposed to land itself, the traditional view has led to the suggestion that overall, the property tax is highly regressive.⁶³

A more recent view regards the property tax as a tax on capital income. This new view essentially predicts that under certain conditions property owners or capital at large bear the bulk of the tax on structures and that its incidence is progressive. Thus,

“...if the property tax on structures were a national tax applied at one rate on all capital assets and if the supply of structures were fixed, then the tax would reduce the net rate of return to all capital including structures. The owners of structures

⁶³More recently, while it has been asserted that there is a blending of the burdens falling of landowners, consumers, producers and labor, the actual composition of this blending is a controversial issue. See Peter Mieszkowski, "The Property Tax: An Excise or Property Tax?," Journal of Public Economics, Vol. 1, (April 1972), pp.73 - 96, George Break, op.cit. pp. 154 - 158, and W.I.Gillespie op.cit. pp. 45 - 49.

would bear the tax on the income - sources side, and given the distribution of capital income, the tax would have a progressive pattern.”⁶⁴

This result should be qualified in the longer run scenario, for in this case

“ the reduction in the net return to capital (available for structures) may depress the capital stock, thereby reducing the future productivity of labor, so that it may come to share the burden. (However) while this may qualify the outcome, the pattern of burden incidence set by the short run - effect, is likely to be dominant”⁶⁵

Furthermore, as Musgrave and Musgrave have noted, these conclusions do not basically change if the tax is not imposed at a national uniform rate but at varying local rates.⁶⁶ With local variations around an average national tax rate, capital will tend to move out of areas with relatively high rates of tax into localities with relatively low rates, until net of tax returns are equalized. This will tend to lower land and labor returns in the former and raise them in the latter. However, these “excise tax” effects need not to overturn the basic result that capital owners bear the bulk of the property tax.⁶⁷

In the case of Costa Rica, two characteristics of the property tax must be underlined: a) the tax is applied at the same rates nationwide and b) it is applied at extremely low effective rates, for the property value registered in the national tax administration is significantly understated. In fact, this has become a widespread

⁶⁴W.I. Gillespie (1980), *op.cit.*, pp. 47

⁶⁵R. Musgrave and P. Musgrave (1984), *op.cit.*, p. 470

⁶⁶*Ibid.*

⁶⁷These excise tax effects resemble those explained for the case of a tax on capital above and below the world rate. See the section on the size and openness of the economy.

concern, for only 10 percent of the national territory is supported by an updated property registry.

Thus, following the new approach to the property tax to examine the Costa Rican case, and considering the nationwide characteristics of this tax and the fact that the effective rates are very low and most likely quite below international rates, the conclusion is that the property tax is likely to be borne by capital at large. Under these circumstances, our standard assumption is that capital bears the burden of the property tax and therefore, we have distributed it according to the series of capital income.

In addition, in order to explore the traditional view, two regressive - oriented experiments are undertaken: in one it is assumed that the tax is partially shifted to tenants, the burden therefore being distributed evenly according to capital income, on the one hand, and rental and repairing expenditures, on the other. In the second experiment, we have assumed that the tax affects consumers at large and have distributed it evenly in accordance to capital income and general consumption expenditures.

4.3 The Findings: Incidence and Distributional Impact of the Costa Rican Tax System

In the two preceding sections the tax categories under consideration, the tax shifting models and the corresponding shifting assumptions have been examined. To explore the distributional and incidence consequences of the Costa Rican tax system is

now in order. During the following exposition attention will first be focused on the findings derived from the application of the set of standard assumptions. After this the implications of the use of the alternative assumptions stated in table 4.4 will be presented. The exposition will conclude with an examination of the Redistributive impact of the Costa Rican tax system.

Overall Distribution of taxes

Tables 4.4 and IV. 2 of the appendix show the distribution of taxes for the whole country. Sixty percent of the global amount of taxes is paid by the families located in the upper three deciles. The richest families (tenth decile) pay an amount fifteen times higher than the poorest families, while the middle class (deciles four to eight), considered the back bone of the Costa Rican society, contribute with an amount equivalent to one third of total revenues.

Looking at individual tax categories, compared with the overall sum, the general sales tax, excise taxes and import duties show a more moderate distribution pattern, whereas social security contributions, the corporation income tax, personal income taxes, property taxes, and export taxes are comparatively more concentrated in the upper deciles. As it shall be seen later with greater detail, this combination of distribution patterns entails a number of effects that offset each other, leaving the overall income distribution virtually unaltered. Naturally, this almost neutral distributional effect of the tax burden is by no means indicative of a uniform incidence pattern. As a matter of fact,

Table 4.4
Costa Rica, Total Country: Monthly Distribution of Taxes by Category and Deciles, 1988
(Percents)

Category	Deciles									
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Social Security Contribution	0.4	2.5	4.4	5.8	7.1	9.5	11.4	14.3	17.7	27.0
General Sales Tax	2.7	3.4	4.6	5.9	6.9	8.1	9.7	12.7	15.4	30.6
Excise Taxes	3.1	3.7	4.7	6.2	7.0	8.2	9.7	12.6	15.1	29.7
Import Duties	4.4	4.4	5.3	6.9	7.5	8.5	9.9	12.4	14.2	26.6
Corporation Income Tax	0.8	3.5	5.1	6.5	7.7	8.5	10.8	13.7	16.0	27.5
Export Taxes	0.6	3.3	5.3	6.8	8.7	9.4	11.4	14.0	17.8	22.7
Personal Income Taxes	2.0	1.7	1.3	1.7	2.1	4.2	3.7	7.6	13.5	62.3
Vehicle Taxes	4.6	3.6	3.1	6.2	6.2	7.1	9.5	12.5	16.6	30.6
Property Taxes	1.6	2.1	1.2	2.2	2.1	4.9	5.2	9.8	14.7	56.1
All Taxes	2.1	3.4	4.8	6.2	7.4	8.4	10.2	12.9	16.0	28.7

Source: Table IV.2

the evidence on this subject presented next shows a variety of incidence patterns by individual tax categories.

The tax invoice

Table 4.5 and figure 4.1 look at the distribution of taxes from a different perspective. They intend to show the composition of the tax invoice faced by the Costa Rican families by deciles and tax categories. By and large, social security contributions are the most important component of the tax bill paid by the Costa Ricans (32%). The relevance of this component is higher for the middle class and substantially lower for the poorest families.

The general sale tax is the next important element of the invoice, followed by excise taxes and import duties, the property tax ranking last in this classification. As could be expected commodity taxes - general sales tax, excise taxes, and import duties - are the heaviest components of the payments corresponding to the poorest families. Furthermore, given the structure of the Costa Rican tax system, if commodity taxes are regarded as a group, this assertion is also valid for all income classes. Particularly, for the middle class other tax categories that stand out in their tax invoice are export taxes and the corporation income tax. These two tax categories, in addition to personal income taxes, are also significant for the upper end families.

Table 4.5
Costa Rica, Total Country: Composition of the Tax Burden by Category and Deciles, 1988
(Percents)

Category	Deciles									
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Social Security Contributions	6.8	24.2	30.7	30.6	32.0	35.1	35.1	34.3	34.6	28.9
General Sales Tax	24.1	18.8	17.7	17.4	17.2	16.6	16.6	17.0	16.8	18.2
Excise Taxes	25.8	18.6	17.0	16.8	16.3	15.6	15.5	15.7	15.3	16.4
Import Duties	28.2	17.3	14.6	14.7	13.5	12.6	12.3	12.0	11.1	11.5
Corporation Income Tax	3.0	8.1	8.4	8.1	8.3	7.5	8.0	7.9	7.5	7.0
Export Taxes	2.2	7.8	8.7	8.6	9.3	8.3	8.4	8.0	8.3	5.8
Personal Income Taxes	3.3	1.7	0.9	0.9	1.0	1.6	1.2	1.9	2.7	6.8
Vehicle Taxes	5.1	2.4	1.5	2.2	1.9	1.8	2.0	2.1	2.2	2.3
Property Taxes	1.4	1.1	0.4	0.6	0.5	1.0	0.9	1.3	1.5	3.2
All Taxes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table IV.2

Figure 4.1 Costa Rica,
Total Country: Composition of the Tax Burden by Tax Categories and Deciles, 1988

Incidence patterns according to the Basic Income base

Now, what are the incidence implications of the above tax distribution structure?. Table 4.6 and figure 4.2 provide an answer to this question. With Basic Income as the reference indicator, the average incidence of the Costa Rican tax system is estimated at 37.2 %. The overall tax structure is shown to be regressive for the first decile, mildly progressive up to the fifth decile, rather proportional up to the ninth decile mildly progressive for the richest families. Thus, the distinctive features of this global tax incidence are its regressiveness at the beginning of the distribution structure, its mild progressiveness at the end of this structure and the combination of incidence patterns in the middle of the distribution, dominated for the most part by a proportional tendency. It is also worth noting that only the four upper deciles exhibits burdens that exceed - although very moderately - the country's average. More in detail, an examination of each tax category shows that social security contributions are very progressive up to the eighth decile and regressive after this (figure 4.3). The general sales tax and the excise taxes are regressive for the first decile mildly progressive up to the middle of the distribution and progressive for the upper income families. Import duties are basically regressive, a pattern reverted only for the third decile and the richest families. The corporation income tax is progressive from the first to the fifth deciles, and essentially proportional after this point. Export taxes show the same behavior, except for the last decile, where they become regressive. Personal income taxes, vehicle taxes and property

Table 4.6
Costa Rica, Total Country: Tax Incidence According to the Basic Income Concept by Tax Category and Deciles, 1988
(Percents)

Category	Deciles										
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	Average
Social Security Contribution	2.2	7.0	9.5	10.7	11.7	12.5	13.0	13.2	12.9	11.7	11.7
General Sales Tax	8.0	5.4	5.5	6.1	6.3	5.9	6.2	6.6	6.3	7.4	6.5
Excise Taxes	8.5	5.4	5.3	5.9	6.0	5.5	5.8	6.1	5.7	6.7	6.1
Import Duties	9.3	5.0	4.6	5.1	5.0	4.5	4.6	4.6	4.2	4.7	4.7
Corporation Income Tax	1.0	2.4	2.6	2.8	3.0	2.7	3.0	3.0	2.8	2.9	2.8
Export Taxes	0.7	2.2	2.7	3.0	3.4	2.9	3.1	3.1	3.1	2.3	2.8
Personal Income Taxes	1.1	0.5	0.3	0.3	0.4	0.6	0.4	0.7	1.0	2.8	1.2
Vehicle Taxes	1.7	0.7	0.5	0.8	0.7	0.6	0.8	0.8	0.8	0.9	0.8
Property Taxes	0.5	0.3	0.1	0.2	0.2	0.3	0.3	0.5	0.6	1.3	0.6
All Taxes	33.0	28.9	31.1	34.9	36.6	35.5	37.2	38.6	37.4	40.6	37.2

Source: Author's estimates

Figure 4. 2. Costa Rica, Total Country: Global Tax Incidence According to the Basic Income Concept, 1988

Figure 4.3 Costa Rica, Total Country: Tax Incidence According to the Basic Income Concept by Tax Categories, 1988

taxes show a pattern of light regressiveness for the poorest families, are proportional for the middle of the distribution and progressive for the richest families.

Incidence pattern according to the Broad Income base

The incidence findings so far presented have taken the Basic Income concept as a reference. But, does the selection of the income based matter ? As table 4.7 and figure 4.4 show, to some extent, it certainly does. When the Broad Income concept is used as a reference, the overall tax system is sharply regressive for the first decile and, in essence, proportional thereafter. Thus, with the use of the Broad Income base, the regressiveness of the tax system for the poorest families not only remains a fact but it is now shown to be more acute. This result is not surprising for as it may be recalled, Broad Income is a pre - fisc base that excludes transfers, a very important income component for the poorest families (see chapter 3).

Once again looking at the incidence patterns of each individual tax category, social security contributions are progressive up to the sixth decile, lightly regressive seventh and eight deciles and regressive for the richest families (Figure 4.5). The general sales tax, excise taxes and import duties are strongly regressive for the poorest families and proportional for the remaining families, with the exception of the richest ones, for which they are mildly progressive. The corporation income tax is basically proportional for all families. Finally export taxes, vehicle taxes, and the property taxes are regressive

Table 4.7
Costa Rica, Total Country: Tax Incidence According to the Broad Income Concept by Tax Category and Deciles, 1988
(Percents)

Category	Deciles										
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	Average
Social Security Contributions	6.9	9.4	11.6	11.9	12.2	14.7	13.9	13.7	14.3	12.3	13.0
General Sales Tax	24.5	7.3	6.7	6.8	6.6	6.9	6.6	6.8	7.0	7.7	7.2
Excise Taxes	26.2	7.2	6.4	6.5	6.2	6.5	6.1	6.3	6.4	7.0	6.7
Import Duties	28.7	6.7	5.5	5.7	5.1	5.3	4.9	4.8	4.6	4.9	5.2
Corporation Income Tax	3.1	3.1	3.2	3.2	3.2	3.1	3.2	3.2	3.1	3.0	3.1
Export Taxes	2.3	3.0	3.3	3.3	3.5	3.5	3.3	3.2	3.4	2.5	3.1
Personal Income Taxes	3.4	0.7	0.4	0.3	0.4	0.7	0.5	0.7	1.1	2.9	1.3
Vehicle Taxes	5.2	0.9	0.6	0.9	0.7	0.8	0.8	0.8	0.9	1.0	0.9
Property Taxes	1.4	0.4	0.2	0.2	0.2	0.4	0.3	0.5	0.6	1.4	0.7
All Taxes	101.6	38.7	37.7	38.9	38.1	41.9	39.5	40.0	41.5	42.5	41.2

Source: Author's estimates

Figure 4.4. Costa Rica, Total Country: Global Tax Incidence According to the Broad Income Concept, 1988

Figure 4.5. Costa Rica, Total Country: Tax Incidence According to the Broad Income Concept by Tax Category and Deciles, 1988

for the poorest families and proportional for the remaining families, a pattern almost identical for personal income taxes, except that these show a hint of progressiveness for the wealthiest families.

A comparative view of the tax incidence measures resulting from the use of the above two income bases is offered in table 4.8 and figure 4.6.

Regional incidence patterns

The situation by regions is summarized in appendix tables IV.3 and IV.4 and figures 4.7 and 4.8. Almost two thirds of the overall amount of taxes are collected from urban tax payers. In each region, the distribution of taxes is very similar to that of the entire country. For instance, the lower two deciles of the urban and rural region pay 6% and 5% of total taxes, compared with 5% for the overall country, while the upper two deciles pay 43%, 46%, and 45% of their respective totals.

As to the incidence patterns, some differences can, however, be distinguished (tables IV.5 and IV.6). Considering first the Basic Income concept, the overall incidence is 39% for rural households, compared with 36% for urban household. But the most significant differences by region are found in the first half of the distribution. Families located in the first decile, for instance, are confronted with an average burden of 38% in rural areas, compared with 26% in urban regions. Broadly speaking, both regions show a mild progressive tendency as of the second decile. In urban areas the tax system appears

Table 4.8
Costa Rica, Total Country: Tax Incidence According
To Alternative Income Concepts, by Deciles, 1988
(Percents)

Deciles	Basic Income	Broad Income
First	33.0	101.6
Second	28.9	38.7
Third	31.1	37.7
Fourth	34.9	38.9
Fifth	36.6	38.1
Sixth	35.5	41.9
Seventh	37.2	39.5
Eighth	38.6	40.0
Ninth	37.4	41.5
Tenth	40.6	42.5
Average	37.2	41.2

Source: Author's Estimates

Figure 4.7 Costa Rica: Tax Incidence According to the Basic Income Concept by Region and Deciles, 1988

Figure 4.8 Costa Rica: Tax incidence According to the Broad Income Concept by Region and Deciles, 1988

to be also progressive for the first decile, but in rural areas the incidence seems to be regressive for this group of families.

The findings based on the Broad Income concept are more clear cut. To begin with, the average incidence of the tax system is slightly lower in the rural region than in the cities, along the entire income distribution structure. On the other hand, in both areas the tax system is very regressive for the poorest families, basically proportional for the following brackets up to ninth decile, and mildly progressive for the richest families. In addition, there is a hint of progressiveness for the second and third decile of the rural areas. In general, if the Broad Income base is used as a reference, the incidence pattern by region very much resembles that of the overall country.

Sensitivity of the estimates

How are the above findings affected by the use of alternative assumptions? In other words, how sensitive are these results to the shifting assumptions?. Table 4.9 and figure 4.9 summarize the findings obtained from the application of the alternative set of assumptions presented in table 4.4.⁶⁸

As may be recalled, on the regressive end two sub - cases are identified: one that assumes the property tax to be borne by property owners and users of facilities and

⁶⁸As has been seen, the overall incidence patterns are very similar for both the Broad and the Basic Income bases. Because of this, the sensitivity estimates are presented only for the former income base. No additional insight is gained with the other set of estimates.

Table 4.9
Costa Rica: Tax Incidence According to Alternative Shifting Assumptions, 1988 ^{1/}
(Percents)

Deciles	Regressive Case 2/	Standard Case	Progressive Case
First	146.0	101.6	106.9
Second	45.2	38.7	43.6
Third	39.6	37.7	38.1
Fourth	40.6	38.9	38.7
Fifth	38.2	38.1	36.0
Sixth	39.7	41.9	37.3
Seventh	37.9	39.5	37.2
Eighth	38.0	40.0	37.4
Ninth	39.0	41.5	38.9
Tenth	43.3	42.5	47.2
Average	41.2	41.2	41.2

^{1/} For the Broad Income base

^{2/} These results correspond to the case in which the property tax is assumed to be borne by property owners and users of facilities (See table 4.3). The case in which it is assumed to be borne in equal parts by property owners and consumers was also investigated with virtually identical results.

Source: Author's Estimates

Figure 4.9 Costa Rica: Tax Incidence According to Alternative Assumptions, 1988

another in which it is considered to be borne by property owners and consumers at large. These two sub - cases led to very similar results and therefore only one of them was chosen to be reported in the study. In addition, social security contributions are assumed to be borne equitably by employees and consumers and the corporation income tax to be borne in balanced proportions by capital owners and consumers. The remaining shifting assumptions are similar to those of the standard case.

On the progressive side, under the assumption of the existence of some rigidities in the mobility of capital, price rigidities and market restrictions, this factor is assumed to bear half of the export taxes while the remaining half stays put with labor. Likewise, capital bears the entire burden of the corporation income tax.

The general conclusion that one can draw from this exercise is that changing the set of assumptions does not actually modify the overall pattern of tax incidence very much. However, the regressive case stresses the absolute magnitude of the regressiveness for the first decile and turns more regressive the system for the second decile, while the progressive case turns the system more progressive for the last decile.

That the system continues to be very regressive for the poorest families, even under the progressive case, is not surprising. This is a natural result of the system's heavy reliance on commodity taxes, none of which was considered to require a treatment alternative to the one contemplated within the set of standard assumptions, export taxes excepted.

In sum, the conclusions concerning the incidence pattern of the Costa Rican tax system that have been reviewed in detail for the standard case, are not contested but

reaffirmed by the use of the alternative sets of tax shifting assumptions displayed in table 4.4. This is a reflection of the leading role played by taxes on commodities within the Costa Rican tax system.

Decomposition of the Gini Coefficient

The concentration features of the tax categories under investigation are shown in appendix table IV.7. The Gini coefficient of the overall distribution of taxes is 0.40, which is slightly above the Gini coefficient of both the Broad Income distribution and the Basic Income distribution. The highest concentration levels are found in personal income taxes (0.67) and the property tax (0.63), meaning that these taxes are very much allocated among the upper income groups. At the opposite extreme, the least concentrated taxes are import duties and excise taxes, with Gini coefficients of 0.31 and 0.29 respectively.

Since the ranking by income brackets of each tax category resembles that of the overall system, the individual tax pseudo - Gini coefficients, defined in chapter 2, are similar to their corresponding Gini's. Thus, the latter can be used directly to decompose the overall tax Gini. The results are presented in the last row of appendix table IV.7: the tax contributing most significantly to the overall concentration level of the system is by far social security contributions, followed by the general sales tax, and excise taxes. Thus, in spite of the high concentration level of personal income taxes and property taxes, due to their small tax share, their contribution to the overall concentration of the system is very small.

Taxes and Income Redistribution

The final issue that remains to be addressed in this chapter is the distributive implications of the tax system. Is the tax system used by the Costa Rican society an instrument of income redistribution?.

To answer this question we have estimated two sets of post tax income distributions. The results are presented in table 4.10 and figures 4.10 and 4.11. From the Basic Income perspective the Costa Rican tax system produces an after tax income distribution slightly more equal than the before tax distribution, while from the Broad Income perspective the distribution does not demonstrate any significant change.

Figure 4.10 shows that the slight flattening of the Basic Income distribution occurs from decile 2 to 9, section of the Lorenz curve that moves fractionally toward the equality line. On the other hand, the invariability of the Broad Income inequality is shown in figure 4.11 by Lorenz curves that are superimposed on each other for the most part of the distribution.

Nevertheless, that the differences are extremely narrow is a fact that should be stressed. The narrowness of the differences suggests that the Costa Rican society has chosen not to use the tax system as an instrument of income redistribution, that is, as a mechanism to flatten the distribution of disposable after tax income.

Table 4.10
Costa Rica: Basic and Broad Income Before and After Taxes, 1988 */
(Millions of Colones and Percents)

Deciles	Basic Income	%	Post Tax Basic Income	%	Broad Income	%	Post Tax Broad Income	%
First	382.3	2.2	256.1	2.4	124.2	0.8	-2.0	0.0
Second	716.6	4.1	509.3	4.7	535.1	3.4	327.8	3.6
Third	942.4	5.4	649.7	6.0	776.0	5.0	483.3	5.2
Fourth	1,104.8	6.4	719.1	6.6	992.2	6.3	606.5	6.6
Fifth	1,232.8	7.1	781.3	7.2	1,186.5	7.6	735.0	8.0
Sixth	1,547.7	8.9	998.3	9.2	1,310.2	8.4	760.8	8.3
Seventh	1,767.2	10.2	1,110.5	10.2	1,661.6	10.6	1,004.9	10.9
Eighth	2,187.1	12.6	1,343.0	12.3	2,109.4	13.5	1,265.3	13.7
Ninth	2,779.5	16.0	1,740.9	16.0	2,501.8	16.0	1,463.2	15.9
Tenth	4,674.3	27.0	2,775.8	25.5	4,471.3	28.5	2,572.8	27.9
Total	17,334.4	100.0	10,884.0	100.0	15,668.7	100.0	9,218.0	100.0
Gini Coefficient		0.36		0.33		0.39		0.39

*/ Estimates based on the standard assumption

Source: Author's estimates

Figure 4.10
Costa Rica: Basic Income Before and After Taxes, 1988

Figure 4.11
Costa Rica: Broad Income Before and After Taxes, 1988

Summary of Findings

To summarize the findings presented in this chapter: social security contributions, the general sales tax, selective taxes and import duties are the most important components of the Costa Rican tax system, accounting for 80% of total revenues. Almost 60% of total collections are paid by the richest three deciles, compared with 10% paid by families located in the first three deciles.

The four above mentioned income tax categories occupy the very first places of the tax invoice faced by the Costa Rican tax payers at all income levels, with the exception of the poorest families, for which social security contributions represent only a slim 7% of their tax invoice.

The Costa Rican tax system is regressive for the poorest families regardless of the income base used as a reference. Beyond this income bracket, according to the Basic Income concept the total tax system is slightly progressive up until the middle of the distribution and mildly progressive for the richest families. And according to the Broad Income base, it is proportional for every remaining income group.

If the Broad Income base is use as a reference, the regional incidence pattern very much resembles that of the country. The same can be contended about the Basic Income base, with the exception of the poorest urban families, for which the tax system appears to be slightly progressive, as opposed to the rest of the country.

The above findings were not significantly altered by the alternative assumptions that were explored in the study, for the three scenarios - progressive, regressive and standard - rendered basically similar incidence patterns.

Finally, the tax system has an almost negligible effect upon the national distribution of income. This suggest that through the public choice mechanism, the Costa Rican society has chosen not to use the tax system as an income redistribution instrument.

It remains to be seen if the expenditure side of the budget is used more dynamically to pursue this objective. This issue will be addressed in the next chapter.

CHAPTER 5

THE DISTRIBUTIONAL EFFECTS OF PUBLIC EXPENDITURE

In chapter 4 the distributional implications of the revenue side of the budget were discussed. This chapter presents the finding with respect to the composition, distribution and incidence of the other side of the budget - public expenditures.

The results summarized in this chapter complement the picture presented in chapter 4 and will allow us to develop a set of indicators on the incidence of the entire public budget. For the sake of unity and coherence, the presentation maintains the sequence and logic of the preceding chapter. Thus, the analysis starts with an examination of the magnitude and composition of public expenditures by programs. In the second section, the expenditures allocation assumptions are discussed.

Three scenarios or cases parallel to those used in the treatment of taxes are developed: standard, regressive and progressive. In addition, an assessment of the implications of the use of the Aaron and McGuire's methodology for the distribution of general public expenditures is presented. The chapter concludes with an evaluation of the impact of public expenditures on the composition of the size distribution of income.

5.1 Size, Composition and Characteristics of Public Expenditures

The comments made in chapter 4, with respect to the development of the tax collection indicators, apply also to the elaboration of the public expenditure tables. The statistics from the Ministry of Finance and the Comptrollership General of the Republic have provided the basic information for the furnishing of the figures presented in this section. To elaborate these figures the difficulties derived from the existence of a fragmented public sector had to be overcome. This was done with the help of an initiative of the Ministry of Finance which led to the consolidation of the statistics of the public sector, starting with figures of 1988.

The combined public expenditures figures of the general government are summarized in table 5.1 and appendix table V.1. We have grouped total public expenditures into eleven categories: health and sanitation, education, social security, general administration, interest on public debt, defense and security, road expenditures, housing and urban/rural development, agricultural production promotion, general economic promotion and recreation and culture. The 88.5 billion colones (approx. US\$1.1 billion) spent by the Costa Rican government in these areas during 1988 represented 25% of the country's GDP, 41% of Basic Income or 46% of Broad income.

Social expenditure - health and sanitation, education and social security - represents by far the major component of this global amount, accounting for 55% of the total. Investment in the social sector has been a visible priority for the Costa Rican society. To

Table 5.1
Costa Rica: Public Expenditure by Categories, 1988
 (Millions of Colones)

Public Expenditure Category	Amount	Per Cent Share
Total	88,468	100.0
Health and Sanitation	21,164	23.9
Education	14,906	16.8
Social Security	12,533	14.2
General Administration	10,932	12.4
Interest on Public Debt	8,628	9.8
Defense and Security	6,110	6.9
Road Expenditures	5,095	5.8
Housing and Urban/Rural Development	3,993	4.5
Agricultural Production Promotion	2,753	3.1
Economic Promotion	1,464	1.7
Recreation and Culture	890	1.0

Source: Elaborated by the author with data of the Ministry of Finance and the General Controllershship of the Republic

put this into perspective, comparing the case of Costa Rica with that of other Latin American countries, social expenditures represented 34% of total expenditures in Bolivia in 1986, 32% in Brazil in 1987, 26% in Chile in 1986, 21% in Dominican Republic in 1988, 29% in El Salvador in 1986, and 38% in Venezuela 1985.¹ We will return to comment in greater detail on the social programs that are run and financed by the Costa Rican public sector.

General expenditures - administration, defense and security - is the next important component of total expenditures (19%). Given the large indebtedness of the country, interests on public debt are next in the ranking.² Since 1990, the country has made a significant effort to reduce its foreign debt but domestic debt has since significantly increased. Next in importance are expenditures on maintenance, construction of roads and related activities (6%), expenditure on urban and rural development (5%), agricultural and economic promotion (5%) and recreation and culture.

In sum, the strong concentration of public expenditures in the social development area is the most distinctive feature of this side of the Costa Rican government's budget.

¹ The World Bank. Social spending in Latin America: The Story of the 1980's. (Mimeo, December 1990), Appendix II.

² As a result of the growing indebtedness of the country, total interest as a percentage of expenditures of the Central Government (i.e., Executive, Legislative and Judicial Branches, only. It is reminded that this study includes also the municipal system and other decentralized institutions) increased from 10% in 1980 to 18% in 1990. Interest on domestic borrowing represents about 70% of this total, a proportion that has been recently on the rise.

The country appears to have given high priority to the well being of its population. As a result, as has been seen, Costa Rica has been able to achieve some internationally respectable social indicators.

Some comments regarding each of the public expenditure categories presented in table 5.1 and appendix table V.1 are in order. Investing in health has been a predominant concern of the Costa Rican society for decades, and especially during the second half of this century. Costa Rica was the second country in Latin America to establish a Ministry of Health and in 1941 created the Costa Rican Fund of Social Security (CCSS), an institution in charge of the provision of curative medicine. Investment in this area has placed the country at the forefront in Latin American and the Caribbean in regards to health standards.

Costa Rica's mortality rate of 14 per thousand live births, its child death rate of 0.7 per thousand and its overall mortality rate of 3.8% are the lowest of the region. The country's life expectancy rate at birth of 76 years is 5 years higher than the average of upper - middle income countries. These achievements are the result of a consistent commitment of the state in making health care services available to the population at large, investing on this area, over the last several decades, at an approximate rate of 7% GDP per year.³

³See Inter American Development Bank, Socioeconomic report: Costa Rica (Washington: October 1992) P 225 - 235, and Adrian Rodriguez, Costa Rica: Los Programas Estatales de Salud y su Impacto en la Distribucion del Ingreso Familiar. (San Jose: Universidad de Costa Rica, IICE, 1984) P2 - 40.

Education is another area of primary concern of the Costa Rican society. This is also a field in which Costa Rica occupies an outstanding position in Latin America. The literacy rate of the population 10 and over, averages 94 percent, primary education has universal coverage and enrollment in secondary school is above 40%, while in post secondary school it is above 20 percent.⁴

In addition to public learning institutions, there are a number of private organizations that offer educational services at different levels under the regulation of the Ministry of Education. However, at the primary level, 99% of the students attend public school, at the secondary level, the figure is about 95% and at the higher education level, the four state universities absorb approximately 80% of the overall enrollment.

Under the heading of social security we have grouped two kinds of programs: pensions and social welfare programs. There are two types of pension programs in Costa

⁴It is interesting to note that in contrast with the experience of other Latin American countries, for a number of years Costa Rica gave priority attention to the development of the primary and secondary educational levels. Thus, the first university created in 1843 was closed in 1888, so as to concentrate the national investment and efforts in the development of the first levels and it was not until 1940 that higher education was again made available.⁴ As of 1949, with the issuing of the current political constitution and the establishment of what has been called the Second Republic, a new stage in the development of the Costa Rican educational system was initiated. This stage was characterized by the enhancement of secondary and higher education, in agreement with a political vision and an economic reality that demanded a more educated labor force. Continuing with this trend, the more recent years have witnessed a rapid expansion of post secondary institutions - university and technical education - that have come to satisfy the growing demand for this level of education and the need of a more sophisticated labor force. See Pablo Sauma and Marvin Taylor, Efecto Redistributivo del Subsidio a la Educacion Preescolar, Primaria y Media en Costa Rica (Tesis de Grado, Universidad de Costa Rica: 1984), P 4.

Rica: contributory and non contributory. The major contributory program is the Old Age, Disability and Death System (IVM), administered by the Costa Rican Social Security Fund (CCSS). Created in 1943, this system is financed with contributions from employers (4.75% of the payroll), workers (2.5% of their own salaries) and the State (0.25% of the overall national payroll). Second in importance is the Teachers Pension System, created in 1958. This system covers teachers and administrative staff of the Ministry of Public Education and other official teaching institutions. Another important pension system is the Judicial Power Pension System created in 1939 to provide coverage to the staff and administrative employees of the Supreme Court of Justice.

In addition to these systems, there are a number of other minor ones that are administered by the Ministry of Labor and Social Security, most of them created before the existence of the Old Age Disability and Death Pension System. Among these, the most important are the Ministry of Finance System, created in 1943, the Ministry of Public Works and Transportation System, created in 1944, and other small systems such as the Communication System, the Public Registration System and the Pacific Rail Road System.

It is important to note that the participation of the State in the financing of this array of special systems has been rapidly growing over the years. At the beginning of the 80's the State was making a contribution three times as large as the members' contributions, but by the end of this decade the relative participation of the State had risen to 6 to one. In other words, these pension systems are in essence, directly financed by the public budget.

The unfair characteristics, heavy burden to the tax payer and regressiveness of these so called special pension systems have been severely criticized by the experts.⁵

As regards non - contributive systems, the Non - Contributive Pension Scheme, created in 1974 to provide basic benefits to the elderly, disabled persons and homeless widows, is the most important one. Individuals covered by this non - contributive system are entitled to the same benefits granted to those covered by the social health insurance administered by the CCSS. In terms of coverage this is the largest pension system of the country, but it provides the lowest average pension per person (approximately 3.000 colones or US\$40, per month in 1988).

Within the social welfare field we have included a number of programs related to the protection of children, the disabled and the elderly as well as the major government nutrition programs. Programs for the protection of children are developed by the National Institute for the Children. Concerning the disabled, the National Board of Rehabilitation and Special Education, coordinates and issues policy regulations in this field, in conjunction with the Ministries of Health and of Labor and Social Security. With respect to nutrition,

⁵Carmelo Meza Lago, Analisis Economico de los Sistemas de Pensiones en Costa Rica y Recomendaciones para su Reforma, (Mimeo, 1988). In 1995, given high public cost of these systems as well as that of the teachers, the government moved a major and very difficult reform, whereby the contributions were raised, the retirement age was extended and a number of loopholes that lent themselves to abuses were closed. The reform also eliminated various special systems that granted unfair privileges, and created a new regulatory institution (the Superintendence of Pensions), with the mission of promoting the orderly and financially sound development of the national pension systems.

there are a number of programs designed to provide complimentary meals to the population on the fringe and particularly to children attending school. Among these, the most important are the Food and Nutrition Program for School Children and Teenagers, the Nutrition and Integrated Child Care Program, the Food Assistance Program, the Nurseries Food Program, the more recent Community Day Care Home, and the Food Aid Program run by the Joint Institute for Social Assistance (IMAS).

To summarize, the social security network of the Costa Rican society, encompasses a combination of programs. These range from pensions systems and income assistance programs, to protection of the elderly, children and the disabled, and nutrition assistance programs. Altogether these programs absorb approximately 14% of total public expenditures or 3.6 % of the country's GDP.

General administration refers to programs related to the maintenance of the public system, including activities such as those of the Legislative Assembly, Electoral Tribunal, Supreme Court of Justice and of general interest ministries, such as Presidency, External Affairs, Finance, Planning and related public agencies. With respect to interest on public debt, the leading development role that the Costa Rican State has played has been accompanied by secular deficits of the Central Government, which have increasingly been financed by public borrowing, both domestic and external but principally domestic. Interest payments on the Central Government external debt rose from 358 million colones in 1980

to 5 billion in 1990, while interest on the Central Government domestic debt increased from 544 million to 13 billion during the same period.⁶

With regards to defense and security, Costa Rica does not have an army. It was abolished in 1949. For the provision of security services, the country counts on two bodies: the Civil Guard and the Rural Guard. The Civil Guard has been traditionally under the command of the Ministry of National Security, while the Rural Guard has been under the Ministry of Government. More recently, both bodies have been put under the single command of the Ministry of Public Security.

With respect to expenditures on roads and highways, although some maintenance activities are the responsibility of the local governments, the Ministry of Transportation is the institution in charge of operations in this area. In order to improve the capacity of the government to provide adequate maintenance to highways, and given the existing budget limitations to expand the road network, the establishment of privatization schemes whereby the construction and administration of highways are granted to the private sector, based on concession agreements, is being considered. It is expected that in 1996 the first project based on this mechanism will be launched.

Concerning housing and urban development, despite the significant improvement that the country has made in this field over the last four decades, this is one of the areas of

⁶Continuing this rapid rate of increase, interest on foreign debt rose to 16 billion in 1995, while interest on domestic debt reached the sum of 78 billion.

greatest needs of the country.⁷ A growing rural - urban migration process has led to an increase of slums and the invasion of unoccupied lands, turning this into a major political issue. At the beginning of this decade the housing deficit was estimated at more than 150 thousand units, representing about 23% of the stock of houses of the country.⁸

Under the heading of agricultural production promotion we have incorporated a wide range of institutions. Included under this heading are the Ministry of Agriculture the (MAG), leading institution of the sector, the Agricultural Development Institute (IDA) which deals with land distribution issues, the Coffee Institute, and various other smaller specialized agencies that provide services in areas such as crop insurance, irrigation, marketing, seed administration and production and the like.⁹ In a country where the

⁷ For instance, the percentage of housing in good repair increased from 32% to 60% between 1983 and 1994; home ownership has grown continuously and at present two thirds of the national housing units are owner occupied; the ratio of inhabitants per bedroom was 1.2 in 1980, one of the lowest in Central America; the proportion of houses serviced by utilities is outstanding for the Latin American region: almost all houses have electricity and about 90% of all units have direct access to potable water.

⁸ To attend to the needs in this area, the public housing sector counts on three institutions: the Ministry of Housing and urban settlements, the National Institute of Housing and Urban Development (INVU), and the Mortgage and Housing Bank (BANHVI). It must be indicated that expenditures of the BANHVI have not been included in this study, for this institution is not part of the General Government. However, the category of urban development expenditures does comprise expenditures of local governments in this area.

⁹ The other mayor institution of this sector is the National Production Council (CNP), a public marketing institution. However, this has not been included in the sector, as it does not constitute part of the definition of the general public sector. The CNP together with the MAG and the IDA, represent 90% expenditures of the public sector in this field. See, Inter American Development Bank, op. cit, pp. 141.

agricultural sector still represents 19 % of the GDP, the services furnished by these institutions play a very important role.

Concerning economic promotion, services in this area are furnished by the Ministry of Trade and Industry (MEIC) and the Ministry of International Trade (COMEX). The MEIC is in charge of regulating domestic trade as well as the activities of the industrial sector and the participation of the country in the Central American Common Market. The COMEX is responsible for furnishing policies and regulations regarding international trade in general, with the exception of trade with the Central American Common Market.

Finally, under the heading of Recreation and Culture, the services provided by the Ministry of Culture, the National Theater, the Physical Education and Sports Directorate and a number of other smaller institutions have been included. These services complement the efforts that the country has been undertaking in the area of education.

The composition and some of the most relevant features and problems of the public provision of goods and services in Costa Rica have been discussed. We should now investigate the distributional impact of the benefits entailed by this provision. In order to do so, the incidence assumptions must first be examined.

5.2 The Public Expenditures Incidence Assumptions

As was seen in chapter 2, for distributional purposes, public expenditures are customarily classified into three categories: i) transfers. ii) specific goods and services and ii) pure public goods and services or general expenditures. Transfers represent a direct reimbursement of income to the families and are therefore treated as negative taxes. The distribution of transfers is usually done with the help of the transfer distribution structure embedded in the income estimates.

In order to deal with the distribution of specific goods and services, the common practice of experts is to rely on a variety of indicators associated with the consumption of the goods or services of concern.

The controversy arises with the distribution of a pure or general public expenditure. Since they are available for consumption to every family and are not subject to exclusion, the selection of an appropriate indicator to be used in allocating these expenditures is normally a difficult task. According to standard treatment in the literature, alternative indicators such as income, income - related measures or the mere number of families, are used to distribute this controversial item. However, as has been seen, a more rigorous methodology but not necessarily a superior approach, has been suggested by Aaron and McGuire, who have concluded that the distribution of the benefits of pure public goods and

services should be done in proportion to the inverse of the marginal utility of private income.¹⁰

This section spells out in detail the assumptions that have been used for distributing the goods and services included in the study. Drawing a parallel to the procedure adopted for the distribution of taxes, three basic scenarios have been defined for the distribution of public expenditures: standard, regressive and progressive.¹¹ In addition, in order to explore the implications of the Aaron and McGuire methodology, further calculations have been made, to produce a "low quantity of public goods case" and a "high quantity of public good case", to be defined further below.

As in the case of taxes, the variants to the standard scenario are intended to test the sensitivity of the results to changes in the assumptions, in response to the characteristics of the Costa Rican public sector or to reflect alternative views on the incidence of certain

¹⁰ Aaron and McGuire, *op.cit.* For important criticism to this methodology see Gillespie (1980), *op.cit.*, 104 - 108 and G.Brennan, *op.cit.*

¹¹ It is worth noting that in this chapter we continue using the terms regressive, proportional and proportional in their strict technical sense. That is, a series of rates that increase (are constant, or decrease) as income increases, is said to be progressive (proportional or regressive), whether they refer to taxes or public expenditures. Hence, a progressive tax distribution means that taxes paid as a percent of income increase as income increases, and a progressive public expenditure distribution means also that the benefit of public expenditures as percent of income increase as income increases. Thus, a progressive tax distribution is income equalizing, while a progressive public expenditures distribution contributes to the concentration of income. However, in order to avoid confusions, throughout the discussion of the incidence of public expenditures the terms pro - rich for progressive and pro - poor for regressive will be added in parenthesis.

expenditure categories. In the following section the assumptions supporting the standard, regressive and progressive cases will be addressed first. The Aaron and McGuire methodology will be explained later.

5.2.1 The Standard, Regressive and Progressive Scenarios

Table 5.2 summarizes the incidence assumptions of the study. Let us examine the assumptions corresponding to health and sanitation, the first item of the table. It may be recalled that the public sector offers two types of health services: preventive medicine and curative medicine. The first is characterized by its pure public good nature, which makes the identification of specific beneficiaries impossible. The second refers to medical services provided to specific and identifiable patients. The standard case assumes that the benefits of preventive medicine are equally received by all families and distributes them in accordance to the number of families by income brackets and regions, that is, that the pure public good component dominates in this case.¹² On the other hand, the standard case assumes that because of its nature, curative medicine is received by those who had visited

¹²In order to obtain the impact of each expenditure item, any pure public good component it may involve is treated in conjunction with the head item, that is, it is not transferred to general expenditures. However, when estimating the Aaron and McGuire's "High Quantity Case", all pure components are added together.

Table 5.2
Costa Rica: Public Expenditure Incidence Assumptions

Public Expenditure Category	Standard Case	Regressive Case	Progressive Case
Health and Sanitation	Preventive Medicine: Benefits equally received by all families	Preventive and Curative Medicine: Benefits distributed according to parameters of Rodriguez's Study	Preventive Medicine: Benefits equally received by all families
	Curative Medicine: Benefits received by people that attended medical consultation or were hospitalized		Curative Medicine: Benefits received 65% by people that attended medical consultation or were hospitalized, 25% equally by all families and 10% on behalf of upper income families
Education	Benefits received by families with students by education level. Private Consumption component dominates	Benefits received 75% by families with students and 25% equally by all families	Benefits received by families with students by education level. Private Consumption component dominates
Social Security	Benefits received by recipients of transfers	Benefits received by recipients of transfers	Benefits received 65% by recipients of transfers, 25% in equal amounts by all families, and 10% on behalf of upper income families.
General Administration, Defense and Security	Benefits 50% equally received by all families and 50% by all families according to their income level	Benefits equally received by all families	Benefits received by all families according to their income level
Interests on Domestic Public Debt	In addition, benefits are distributed according to Aaron and McGuire's methodology, using a marginal utility function of the form $1/Y^A$, where Y represents private income, for A values of 1, 1.5 and 2 and two scenarios: "low quantity of public goods and "high quantity of public goods".	Benefits equally received by all families	Benefits received by interest income earners
Interests on Foreign Public Debt	Benefits received 70% by domestic interest income earners and 30% equally by all families	Benefits equally received by all families	Benefits received by interest income earners
Road Expenditures	Benefits received 65% by vehicle owners and 35% by all families according to their consumption levels	Benefits received 65% by vehicle owners and 35% by all families according to their consumption levels	Benefits received 50% by vehicle owners, 25% by all families according to their consumption levels and 25% by property owners
Housing and Urban Development	Benefits entirely received by property owners	Benefits received 50% by property owners and 50% by users of infrastructure facilities	Benefits entirely received by property owners
Promotion of Agricultural Production	Benefits received 50% by rural property owners and 50% by rural workers	Benefits received 1/3 by rural property owners, 1/3 by food consumers and 1/3 by rural workers	Benefits received 75% by rural property owners and 25% by rural workers
Economic Promotion	Benefits received by all families according to their income level	Benefits received by all families according to their income level	Benefits received by all families according to their income level
Recreation and Culture	Benefits received 75% by all families according to their expenditures in culture and recreation and 25% by all families in equal proportions	Benefits received 75% by all families according to their expenditures in culture and recreation and 25% by all families in equal proportions	Benefits received 75% by all families according to their expenditures in culture and recreation and 25% by all families in equal proportions

the health system for medical consultation or were hospitalized during the year, that is, that the individual consumption component dominates these type of services.

It must be recognized that curative medicine also benefits the population at large, by preventing the propagation of diseases, by improving the health status of the society and by increasing the potential social productivity.¹³ Likewise, as Gillespie has indicated, medical care also has an equal needs dimension, i.e., higher income families may derive extra utility from the provision of health services to lower income families.¹⁴ We do not dispose of an analytical framework or of series to take into account these public benefits of Medicare; more work certainly has to be done in this field to build the appropriate analytical framework. However, the alternative scenarios attempt to incorporate these effects.

To build the regressive (pro - poor) case, we have employed data from the study by Rodriguez on the distribution of the public subsidy to Medicare.¹⁵ The use of these data results in the generation of a series which gives a greater weight to the benefits received by lower income families than the standard series. The data was used to allocate both preventive and curative medicine. In the progressive (pro - rich) scenario, once again

¹³See for instance, Selma J. Musking, "Health as an Investment", in *The Journal of Political Economy*, (Vol LXX, Supplement: October 1962, Number 5, Part 2, pp. 129 - 157.). p. 132.

¹⁴W.I.Gillespie (1980), *op.cit*, pp 71 - 108

¹⁵See Adrian Rodriguez, *Los Programas Estatales de Salud y su Impacto en la Distribucion del Ingreso Familiar* (San Jose: IICE, Universidad de Costa Rica, 1984, Mimeo) pp. 104 - 109.

preventive medicine is assumed to be received equally by all families, but curative medicine, the largest component of the item, is hypothesized to be received 65% by those who attended medical consultation or who were hospitalized during the year, 25% in equal amounts by all families, and 10% on behalf of the upper income families. This, undocumented but perhaps plausible assumption is meant to recognize not only the private consumption component of curative medicine, but also its strong pure public good and equal need components that were discussed above. The application of these proportions certainly transforms the distribution of benefits into a more progressive one, owing to the fact that in the standard case, the lower and middle income households are the most noticeable users of the health system at large.

Regarding education, the standard case assumes that the benefits are received by the households with students, that is, that the benefits are entirely internalized by the households, or, again, that the private consumption component dominates. To build this case, the number of students by educational level, family and income brackets were identified and the distribution of these series were used to allocate category by category, the expenditures in primary, secondary education, higher and other types of education.

In order to incorporate the social benefits of public education, one alternative case is developed: 75% the benefits of each educational level have been assumed to be received by families with students and 25% in equal amounts by all families. This assumption moderates the regressive (pro - poor) distribution of the benefits of primary and secondary

education and the progressive (pro - rich) distribution of the benefits entailed by higher education. The reason is that in the standard case the benefits of primary and secondary education are concentrated in the lower and middle income groups while those of higher education are especially located in the middle and upper income brackets.

As to social security, in the standard case the benefits have been hypothesized to be absorbed by the recipients of transfers and have been distributed according to the series of transfer recipients identified by means of the Income and Expenditures Survey. This case is also used in the regressive scenario. For the progressive scenario, it has been assumed that 65% of the benefits are received by the recipients of transfers, 25% are allocated in equal amounts among all families and 10% among upper income families. This assumption is similar to the one used in the case of curative medicine: it attempts to recognize the private, social and equal needs components entailed by the distribution of public transfers. The use of this assumption significantly moderates the strong regressive (pro - poor) bias that the distribution of transfers shows in the standard case.

Regarding general administration, defense and security - the pure public goods *par excellence* - the number of distribution hypotheses is more extensive. For the standard case, 50% of the benefits are allocated among all families in equal proportions and the remaining 50% also among all families, but according to their income level. This assumption represents a compromise between the regressive and progressive scenarios. In effect, the presumption in the regressive case is that the benefits are received in equal amounts by all

households.¹⁶ In the progressive case, the benefits are distributed according to the family income level. In addition to these three scenarios, general expenditures or pure public goods at large are distributed in conformity with the methodology developed by Aaron and McGuire. This case is presented below in a separate section.

Concerning interests payments on public debt, these can be treated as transfers, directly received by the lenders, or as an operational cost of the public sector, sometimes related to the financing of public investment some others to the financing of current expenditures. If treated as transfers (interest payments would simply represent the returns to lenders for their financial activities) the allocation would be straightforward. If treated as operational costs, the distribution of public expenditures would be far more difficult. In the latter case, a three step procedure, for instance, could be followed: first, the provision of goods and services that require the use of this input (interest) would be identified, second the input would be distributed among such goods and services, third the input would be distributed among families in proportion to the participation that such input may have in the provision of the aforementioned goods and services and according to the distribution of the latter by income brackets. Alternatively, a more rudimentary but direct method would be to assume that the input is equally distributed among all families that benefit from the public provision of goods and services.

¹⁶As it may be recalled, this corresponds to the case advocated by Brennan in his critique to the Aaron And McGuire methodology. See chapter 2.

The standard case develops a combination of the above approaches, assuming that 70% of the interests on domestic public debt are directly received by domestic interest income earners and that 30% are equally distributed among all families. The regressive (pro - poor) case takes the extreme position that they are equally distributed among all families, that is, they represent an input of pure public good nature. The progressive (pro - rich) case take the other pole, for the benefits are assumed to be received entirely by interest income earners, i.e., they are treated as pure transfers. Parallel to this, in the standard case, 70% of the interests on foreign public debt are assumed to be received by foreign interest income earners while 30% are distributed in equal amounts by all domestic families. In the regressive (pro - poor) case they are equally distributed among all families, whereas in the progressive (pro - rich) case the benefits are assumed to be entirely received by foreign income earners.

With respect to expenditures on roads, the standard case takes the assumption that the benefits are 65% received by the owners of vehicles and 35% by all families in accordance to the their consumption levels, for road expenditures are considered to be instrumental for the reduction of overall consumption costs. The percentages correspond to the composition of the national stock of vehicles according to their use - vehicles for personal use (65%) and vehicles for work only (35%). In the regressive (pro - poor) case the same distribution of benefits is used and in the progressive (pro - rich) case the proportion received by vehicle owners is reduced to 50% while 25% is distributed among

all families according to their consumption level and 25% is assumed to benefit property owners.

Concerning housing and urban development expenditures, drawing a parallel with the treatment of property taxes, in the standard case, the benefits are assumed to be entirely absorbed by property owners while the regressive case assumes that 50% of the benefits are received by property owners and 50% by users of infrastructure facilities. No specific progressive case was developed.

Turning to expenditures on the promotion of agricultural production, in the standard case, half of the benefits are assumed to be received by owners of rural property and the other half by rural workers. In the regressive case one third of the benefits are assumed to be received by rural property owners, one third by all food consumers and one third by workers. In the progressive case, 75% of the benefits are distributed among property owners and 25% among workers.

Economic promotion is assumed to produce benefits which are received by all families in proportion to their income levels. This assumption is applied for the three cases under study. Finally, 75% of the benefits produced by expenditures on Recreation and Culture are hypothesized be received by all families, in proportion to their expenditures in activities related to recreation and culture and the remaining quarter by all families in equal amounts. This assumption is also applied to the three scenarios.

The assumptions underlying the estimates of the incidence of public expenditure by expenditure category have been presented. However, as has been indicated, the category of general expenditures will also be treated according to the methodology suggested by Aaron and McGuire. The theoretical basis of this approach was examined in chapter 2. The purpose of the next section is to provide the details of the suggested methodology.

5.2.2 The Aaron and McGuire Methodological Approach to the Distribution of Pure Public Goods

In perhaps the most important methodological contribution to the subject to date, Henry Aaron and Martin McGuire have argued that the distribution of pure public goods need not to be made by means of arbitrary proxies, as above. Instead, they propose a distribution method that draws on the theory of public goods.

The following assumptions constitute their point of departure: i) Each household's marginal rate of substitution between public goods and other goods is known, or assumed, ii) the total and marginal cost of public and specific goods is known for all relevant outputs of these goods, iii) all utility functions are identical, iv) each public good enters every household's utility function, v) all households in each income bracket can be represented by the average income level and expenditure mix in that bracket, vi) the marginal cost of public

goods equal the average cost at the amount supplied, vii) the actual output of public and specific goods is allocatively efficient so that marginal cost equal the sum of marginal rates of substitution, viii) the utilities of public good and of other goods are independent.

Based on these assumptions and drawing on the theory of public goods, they conclude that "to each household should be imputed a fraction of the total value of the public good, proportional to the reciprocal of its marginal utility of private good expenditure".¹⁷ That is,

$$Y_p^i = Y_p / f_p^i, \quad (1)$$

where Y_p^i is the quantity of pure public goods corresponding to household i , Y_p is the total amount of public goods and f_p^i is the marginal utility of private income defined as the sum of disposable income and the benefits of specific public goods, including transfers. Since it is normally assumed that the marginal utility declines as income rises, this method prescribes increasing allocations of pure public goods for increasing income levels. With this allocation rule specified, Aaron and McGuire summarize their redistribution method as follows:

"(i) For each income class calculate the final disposable income, after all taxes (actual or imputed) have been paid.

¹⁷ Aaron and McGuire, op.cit. p. 911

(ii) Add to the figure so calculated for each income class the specific (private good type) benefits of government expenditures received by each class. Transfer receipts are included here.

(iii) The foregoing procedure will produce a private (or "private - type") income or "product received" estimate for the representative individual (or family) of each class. The procedure will also result in an unallocated total expenditure for public goods. Any marginal utility of private income schedule may then be hypothesized and, with that utility schedule, the residual expenditure on public goods is distributed so that for all representative families the product of marginal utility of private income times the family's share of public good expenditure is the same. Naturally, the sum of these allocations weighted by the number of families in each income class must add to the total public good expenditure.

(iv) Adding the private or specific incomes of each family to its allocation of public goods expenditures gives a total final income, or more accurately, "product received". It is this final product received which should be compared with the reconstruction pre - tax pre - benefit income of families to determine the net distributional impact of taxation and expenditure."¹⁸

Thus, given equation (1), the remaining step is to assume a plausible, explicit utility function in order to proceed with the distribution of the benefits of pure public expenditure.

To evaluate the application of this methodology, Aaron and McGuire take the results of a previous study of the US economy and use two arbitrary utility functions as a reference. What is important about these two utility functions is that in both cases their respective marginal utility functions take the form $A/Y^{\phi}_{(Private)}$, where A is a constant. However, in one case they set ϕ equal to 1 and in the other ϕ equal to 2.

The value of ϕ determines the velocity of the declining marginal utility schedule. For instance, for the values that were chosen above, in one case ($\phi=1$) the marginal utility is always positive and total utility rises without limit as income increases. In the other ($\phi=2$)

¹⁸Ibid., p. 914

the marginal utility tends to zero as income rises. And given equation (1), this in turn means that the higher the value of ϕ the greater the value of public expenditures allocated to upper income groups.¹⁹ It is worth noting that in a subsequent contribution, Maital (1973) indicated that the value of ϕ need not be arbitrarily chosen, arguing that research on the US economy shows that the value of ϕ is around 1.5.²⁰

In order to complete their empirical assessment, Aaron and McGuire define two scenarios: one based on a restrictive definition and amount of pure public goods called "Low Quantity of Public Goods" and another in which they incorporate and treat a fraction of each specific public good and service as pure public goods, a scenario which they label "High Quantity of Public Good".

It is worth noting that the specification of these scenarios is not an issue without importance. In response to the works by Aaron and McGuire and Maital, Gillespie and Labelle have shown that:

" the degree of externalities from specific government expenditures ... is the key to reconciling previous redistribution of income results at one time for Canada with those of the United States. The low concept of the quantity of pure public goods results in a pattern of fiscal incidence in Canada that is not significantly different from the pattern suggested by the orthodox methodology.....[In addition], the greater the degree of externality, the greater is the change in the pattern of redistribution during the 1960's in favor of upper - income and rich families at the expense of the middle and lower income families. ²¹

¹⁹Ibid., p. 914 - 15

²⁰Maital, op.cit. pp. 567

In other words, besides the assumed utility function, a critical factor determining the results is the degree of externality presumed to be entailed by specific goods. As it will be seen shortly, the importance of this degree of externality as a pro - rich redistribution factor is reconfirmed by the findings of this work.

Drawing on the above methodological guidelines, this thesis presents a set of estimates on the distribution of pure public goods alternative to the ones generated by the standard, regressive and progressive scenarios. For this, first, a marginal utility function of the same form hypothesized by Aaron and McGuire, i.e., $1/Y^\phi$ has been assumed. Theoretically, this is a satisfactory enough assumption, for it ensures the generation of a normal declining schedule of marginal utility. The difficulty arises with the specification of the velocity of the declination, i.e., the value of ϕ . There are no studies available on the Costa Rican economy to draw on for this purpose. Therefore, in order to carry out the simulation it was chosen to work with the three values that have been used in previous studies: $\phi=0$, $\phi=1.5$ and $\phi=2$.

In addition, two scenarios have been built: one in which the methodology is applied only to General Expenditures Defense and Security, identified as "low quantity of public expenditures case". A second one in which a percentage of each specific expenditures is defined as pure public and treated in conjunction with general public expenditures, called

²¹W. Irwin Gillespie and J Brian Labelle, "A Pro - Poor or Pro - Rich Redistribution of Income?", in National Tax Journal, Vol. XXXL pp. 188

"high quantity of pure public goods case". Thus, combining scenarios and values of ϕ , altogether six cases are assessed.

5.3 Public Expenditures and Income Redistribution: Who Benefits from the Public Provision of Transfers, Goods and Services ?

We should now proceed to the presentation of findings. The order of exposition is as follows. First, the results based on the standard scenario by income concept and region will be examined. Second, the incidence according to the two alternative scenarios - regressive and progressive - will be considered. The findings based on the use of the Aaron and McGuire methodology will follow next. Finally, the impact of public expenditures upon the distribution of income, will be evaluated.

Overall distribution of public expenditures

Table 5.3 and appendix table V.2 present the findings concerning the distribution of public expenditures by deciles and expenditure category for the whole country, based on the standard case and the Broad Income Base. From the second to the sixth deciles the

Table 5.3
Costa Rica, Total Country: Monthly Distribution of Public Expenditure by Category and Deciles, 1988
(Percents)

Category	Deciles										
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	All Deciles
Health and Sanitation	8.8	11.1	10.4	8.5	11.0	10.1	10.0	11.1	9.0	9.9	100.0
Education	6.4	8.5	10.1	9.4	8.7	7.9	12.2	12.1	12.7	12.0	100.0
Social Security	35.4	7.9	5.4	5.8	5.2	8.1	6.7	7.5	7.2	11.0	100.0
Gen. Admin., Defense and Security	6.1	7.1	7.7	8.2	8.6	9.5	10.1	11.3	13.0	18.6	100.0
Interest on Public Debt	4.7	5.7	5.6	5.3	4.9	5.4	5.2	6.0	11.1	46.1	100.0
Road Expenditures	3.1	2.6	3.0	4.6	5.2	6.2	7.1	12.1	14.9	41.3	100.0
Housing and Development	1.6	2.1	1.2	2.2	2.1	4.9	5.2	9.8	14.7	56.1	100.0
Promotion of Agricultural Production	2.1	4.7	5.5	6.0	7.5	8.2	8.4	13.8	14.5	29.3	100.0
Economic Promotion	4.1	3.8	5.0	6.3	7.3	8.3	10.2	12.9	15.1	26.8	100.0
Recreation and Culture	4.9	4.3	5.7	7.8	6.9	8.7	9.3	12.5	15.7	24.5	100.0
Total Expenditure	10.4	7.7	7.6	7.3	7.8	8.4	9.1	10.6	11.3	19.8	100.0

Source: Author's Estimates

proportion of expenditures corresponding to each income bracket ranges between 7% and 8%; the first, eighth and ninth absorb between 10% and 11% each, while the last decile is well above these ranges (20%).

The lowest concentration is shown by the distribution of expenditures in health and sanitation, followed by education expenditures. Social security expenditures are strongly concentrated in the lower part of the distribution, with 35% of the total allocated to the first decile.

The extreme concentration of social security expenditures in the lower part of the distribution deserves further comments. In chapter 3 the significant role of transfers in the distribution of income in Costa Rica was already studied. In that chapter we examined the distribution pattern of transfers and saw that the exclusion of this item leads to a more concentrated income distribution, with the Gini coefficient rising from 0.36 to 0.39, a significant increase indeed.

The new evidence presented in this chapter provides further insight into this matter.

An important component of transfers - social security expenditures - is strongly concentrated in the bottom of the distribution. Although this could be deduced from the results presented in chapter 3, the evidence was not presented directly. For many families the income they receive in the form of a pension, or a transfer in kind or money, represents a significant amount of the total income accumulated by their members. Under these

circumstances, a family located in a middle or higher income bracket with the help of the pension or transfer, can easily fall to the first income brackets without this income benefit.

Thus, the strong concentration of transfers in the lower part of the distribution structure is certainly one of the most remarkable features of the distribution of public expenditures in Costa Rica. They are shown to be strongly targeted toward the poorest population and play a critical role in the process of income redistribution.

Expenditures on health and sanitation and education also play an important role in the reduction in the degree of income concentration. Expenditures on general administration, defense and security (pure public goods) show a slight inclination toward the upper income brackets. Interest on public debt, road expenditures and housing and urban development exhibit the highest degrees of concentration in the upper levels, followed by expenditures on promotion of agricultural production, general economic promotion and recreation and culture.

The basket of public goods and services

Table 5.4 and figure 5.1 shed light on the subject from another perspective. In the previous chapter we studied the composition of the tax bill paid by each income bracket. Parallel to this concept, it is also interesting to investigate the composition of the basket of

Table 5.4
Costa Rica, Total Country: Composition of Public Expenditure by Category and Deciles, 1988
(Percents)

Category	Deciles										
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	All Deciles
Health and Sanitation	20.8	35.6	33.8	28.7	34.4	29.7	27.0	25.9	19.6	12.4	24.6
Education	10.6	19.1	23.1	22.3	19.2	16.4	23.1	19.9	19.5	10.5	17.3
Social Security	49.5	15.0	10.4	11.4	9.6	14.0	10.7	10.4	9.3	8.1	14.6
Gen. Admin., Defense and Security	11.6	18.3	20.1	22.1	21.6	22.3	21.9	21.2	22.9	18.6	19.8
Interest on Public Debt	3.2	5.3	5.3	5.2	4.5	4.6	4.1	4.1	7.0	16.6	7.1
Road Expenditures	1.8	2.0	2.3	3.7	3.9	4.4	4.6	6.8	7.8	12.4	5.9
Housing and Development	0.7	1.3	0.7	1.4	1.3	2.7	2.6	4.3	6.1	13.2	4.6
Promotion of Agricultural Productio	0.6	2.0	2.3	2.6	3.1	3.1	3.0	4.2	4.1	4.7	3.2
Economic Promotion	0.7	0.9	1.1	1.5	1.6	1.7	1.9	2.1	2.3	2.3	1.7
Recreation and Culture	0.5	0.6	0.8	1.1	0.9	1.1	1.1	1.2	1.4	1.3	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table V.2

Figure 5.1 Costa Rica,
Total Country: Composition of Public Expenditure
by Categories and Deciles, 1988

public goods and services received by each income bracket. Viewed from this angle, a typical middle income family receives a basket in which health and sanitation, general public goods and education are the most relevant components. For the poorest families the most important items are health and sanitation and social security, while for the richest the major weight is on general administration, interests on public debt, road expenditures, urban development and health and sanitation. The remaining public expenditure categories are items of relative low importance in the respective baskets.

Incidence patterns according to the Basic Income base

Table 5.5 and figures 5.2 and 5.3 summarize the incidence estimates using the Basic Income concept as a reference. Total incidence is estimated at 41.3% on average. However, the incidence pattern is drastically regressive (pro - poor) starting from 195% for the first decile and declining to 30% for the last decile.²² The strongest regressive (pro - poor) behavior is observed in the first half of the income distribution, especially in deciles one to five. Thereafter, the incidence becomes mildly regressive (pro - poor).

²²For an explanation of the use of the concepts regressive, progressive and proportional see note 11 above.

Table 5.5
Costa Rica, Total Country: Public Expenditure Incidence According to the Basic Income Concept by Category and Deciles, 1988
(Percents)

Category	Deciles										
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	Average
Health and Sanitation	40.6	27.3	19.5	13.6	15.7	11.5	10.0	9.0	5.7	3.8	10.2
Education	20.8	14.6	13.4	10.6	8.8	6.4	8.6	6.9	5.7	3.2	7.2
Social Security	96.7	11.5	6.0	5.4	4.4	5.4	3.9	3.6	2.7	2.4	6.0
Gen.Admin., Defense and Security	22.7	14.0	11.6	10.5	9.8	8.7	8.1	7.3	6.6	5.6	8.2
Interest on Public Debt	6.3	4.0	3.0	2.5	2.0	1.8	1.5	1.4	2.0	5.0	2.9
Road Expenditures	3.4	1.5	1.3	1.8	1.8	1.7	1.7	2.3	2.3	3.7	2.4
Housing and Development	1.4	1.0	0.4	0.7	0.6	1.1	1.0	1.5	1.8	4.0	1.9
Promotion of Agricultural Production	1.3	1.5	1.3	1.3	1.4	1.2	1.1	1.4	1.2	1.4	1.3
Economic Promotion	1.3	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Recreation and Culture	1.0	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Total Incidence	195.5	76.5	57.7	47.6	45.6	38.8	37.0	34.6	29.0	30.3	41.3

Source: Author estimates

Figure 5.2 Costa Rica, Total Country: Global Public Expenditure Incidence According to the Basic Income Concept, 1988

Figure 5.3 Costa Rica, Total Country: Public Expenditure Incidence According to the Basic Income Concept by Categories, 1988

Looking at each public expenditure category, social security is sharply regressive (pro - poor) up to the third decile, proportional as of there and shows a hint of progressiveness (pro - rich) at the very end of the distribution. Health and Sanitation is very regressive (pro - poor) up to decile four, progressive (pro - rich) from the fourth to the fifth decile and regressive (pro - poor) thereafter. Expenditures on education are consistently regressive for the whole distribution with the exception of decile six to seven, where the pattern exhibits a hint of progressiveness.

General public goods are regressive (pro - poor) all along the distribution structure. Interest on public debt and road expenditures are mildly regressive (pro - poor) at the beginning of the distribution, basically proportional for the remaining part of it and mildly progressive (pro - rich) at the very end, while the remaining headings are virtually proportional for the entire income structure.

Incidence patterns according to the Broad Income base

Table 5.6 and figures 5.4 and 5.5 offer the same kind of incidence estimates but now using the Broad Income concept as a reference. With this lower income base, the relative impact of public expenditure is more visible. However, the estimates based on both income

Table 5.6
Costa Rica, Total Country: Public Expenditure Incidence According to the Broad Income Concept by Category and Deciles, 1988
 (Percents)

Category	Deciles									
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Health and Sanitation	125.0	36.5	23.7	15.2	16.3	13.6	10.6	9.3	6.3	3.9
Education	64.0	19.6	16.2	11.8	9.1	7.5	9.1	7.1	6.3	3.3
Social Security	297.8	15.4	7.3	6.1	4.5	6.4	4.2	3.7	3.0	2.6
General Administration, Defense and Security	69.8	18.7	14.1	11.7	10.2	10.2	8.6	7.6	7.4	5.9
Interest on Public Debt	19.4	5.4	3.7	2.7	2.1	2.1	1.6	1.5	2.3	5.3
Road Expenditures	10.6	2.1	1.6	2.0	1.9	2.0	1.8	2.4	2.5	3.9
Housing and Development	4.3	1.3	0.5	0.7	0.6	1.3	1.0	1.5	2.0	4.2
Promotion of Agricultural Production	3.9	2.0	1.6	1.4	1.4	1.4	1.2	1.5	1.3	1.5
Economic Promotion	4.0	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
Recreation and Culture	2.9	0.6	0.5	0.6	0.4	0.5	0.4	0.4	0.5	0.4
Total Incidence	601.7	102.5	70.1	53.0	47.4	45.9	39.3	35.9	32.3	31.7
										45.7

Source: Author's estimates based on tables 4.19 and 5.4

Figure 5.4. Costa Rica, Total Country: Global Public Expenditure Incidence According to the Broad Income Concept, 1988

Figure 5.5. Costa Rica, Total Country: Public Expenditure Incidence According to the Broad Income Concept by Category and Deciles, 1988

concepts are very similar - with the exception of the first decile, in which both sets of estimates differ in degree but not in orientation.

On average, the incidence is estimated at 45.7%, but the relative impact ranges from 608% for the first decile to 31% for the richest families. Thus, the incidence pattern is very regressive (pro - poor) from the first to the fourth decile and just mildly regressive (pro - poor) thereafter. Looking at the estimates by public expenditure categories, although the relative impact varies (especially for the first decile), the pattern described for the case of the Basic Income essentially remains the same.

A comparative picture of the incidence estimates based on the two income concepts of reference is presented on table 5.7 and figure 5.6. These figures make evident the similarities in tendency and the differences in degree between both sets of estimates, as described above.

Regional public expenditures incidence patterns

Turning to regional comparisons, appendix tables V.3 and V.4 present the distribution of public expenditures for the urban and rural areas. Sixty percent of total public expenditures is absorbed by urban areas. The distribution of public expenditure is slightly more uniform in rural areas than in the cities. The first decile of the urban areas

Table 5.7
Costa Rica, Total Country: Global Public Expenditure Incidence According
To Alternative Income Concepts, by Deciles, 1988
(Percents)

Deciles	Broad Income	Basic Income
First	601.7	195.5
Second	102.5	76.5
Third	70.1	57.7
Fourth	53.0	47.6
Fifth	47.4	45.6
Sixth	45.9	38.8
Seventh	39.3	37.0
Eighth	35.9	34.6
Ninth	32.3	29.0
Tenth	31.7	30.3
Average	45.7	41.3

Source: Author's Estimates

Figure 5.6. Costa Rica, Total Public Expenditure Incidence by Alternative Income Concepts and Deciles, 1988

absorbs a proportion of expenditures (12.1%) which is larger than those of rural areas (9.4%) and the average (10.4%). This is explained by the concentration of income assistance programs in the cities, as well as by the greater supply of education and health services in urban areas.

The incidence implications of this distribution pattern by regions is presented in appendix tables V.5 and V.6 and figures 5.7 and 5.8. If the Basic Income concept is used as reference, the overall degree of incidence is estimated in 44.7% for the rural areas and 39.3% for the cities, compared with the 41.3% of the whole country. Both urban and rural areas show an incidence pattern very similar to that of the whole country: strong regressiveness (pro - poor) for the first and second deciles, some regressiveness from this point up until to the first half of the distribution and mild regressiveness thereafter.

The pattern is basically the same if the Broad Income concept is used as a reference. The difference is only one of degree, especially regarding the first and the second deciles, owing to the significant influence of transfers in the lower part of the distribution, for both urban and rural areas. In addition to this difference of degree, it is also noteworthy that for the first decile the incidence appears to be stronger in urban areas than in the rural region if the Broad Income concept is used, but the opposite holds if it is measured with the Basic Income concept. Once again, this is explained by the concentration of income assistance programs in urban localities.

Figure 5.7 Costa Rica: Public Expenditure Incidence According to the Basic Income Concept by Region and Deciles, 1988

Figure 5.8 Costa Rica: Public Expenditure incidence According to the Broad Income Concept by Region and Deciles, 1988

Sensitivity of the estimates: the progressive and regressive cases

Are the above results challenged by the regressive (pro - poor) or progressive (pro - rich) scenarios ? Table 5.8 and figure 5.9 present a comparison of the results obtained when using these alternative sets of assumptions vis - à - vis the standard case. The important outcome of this analysis is that the use of the alternative sets of assumptions does not, in essence, alter the conclusions derived from the standard case. The regressive (pro - poor) case increases the relative importance of public expenditures for the first half of the distribution and reduces it for the last three deciles, while the opposite occurs with the progressive (pro - rich) case. However, the changes are not significant enough to alter the incidence pattern shown by the standard case. As figure 5.9 shows, the incidence curves of the three models move closer together from the first to the third decile and become virtually one single line thereafter. This is indeed a very significant finding: the incidence pattern reaffirms itself, regardless of the model employed - regressive, standard or progressive.

Sensitivity of the estimates: The Aaron and McGuire case

The question arises: are the results contested by the use of the Aaron and McGuire methodology? The distribution of public expenditures for the low and high quantity of

Table 5.8
Costa Rica: Public Expenditure Incidence According to Alternative Shifting Assumptions
Broad Income, 1988
(Percents)

Deciles	Regressive Case	Standard Case	Progressive Case
First	814.3	601.7	448.1
Second	128.2	102.5	84.8
Third	81.8	70.1	60.6
Fourth	61.3	53.0	47.5
Fifth	51.7	47.4	42.5
Sixth	51.7	45.9	42.5
Seventh	40.8	39.3	37.5
Eighth	34.8	35.9	38.9
Ninth	28.9	32.3	36.9
Tenth	22.5	31.7	38.0
Average	47.1	45.7	45.2

Source: Author's Estimates

**Figure 5.9 Costa Rica: Public Expenditure
Incidence According to Alternative Assumptions,
Broad Income , 1988**

public goods and services cases and the three alternative values of Φ , explained in the preceding section, are presented in appendix tables V.7 and V.8 and figure 5.10. The three values of Φ produce a distribution of *general* expenditures more concentrated in the upper income groups than in the standard or the regressive cases. However, when $\Phi=1$ in the low quantity case, the distribution of *general* expenditures is very similar to the one obtained in the progressive (pro - rich).

As it was expected, increases in the value of Φ produce a greater pro - rich concentration of *general* public expenditures.²³ However, the concentration effect is even greater when moving from the low quantity of public goods to the high quantity of public goods.

The impact of this distribution of *general* public expenditures upon the distribution of *total* public expenditures is shown in the second half of appendix table V.7. The above explained effect also takes place in this case: the high quantity of pure public goods and services case have a stronger impact on the overall amount of public expenditures than do the low quantity case. And in each of these scenarios, the higher the value of Φ the more pro - rich is the impact.

The findings show that there is a resemblance between the distribution generated by the low quantity of *total* public goods and services case for $\Phi=1$ and the standard case. Similarly the progressive (pro - rich) case is virtually reproduced by the low quantity

²³See section 5.2.2

Figure 5.10 Costa Rica: Distribution of Total Public Expenditures , According to the Aaron and McGuire Methodology and the Standard, Regressive and Progressive Cases, 1988
(Percents)

Source: Table V.8

scenario with $\phi = 1.5$. A close reproduction of the progressive (pro - rich) case is also obtained by using the high quantity scenario with $\phi = 1$. Higher values of ϕ , especially for the high quantity scenario, lead to distributions of *total* public expenditure more concentrated in the upper end than the in any other distributional scenario.

Table 5.9 and figures 5.11 and 5.12 compare the incidence implications of the above distribution patterns of public expenditures for the low and high quantity cases and the three reference cases. Again, within the low quantity context, $\phi = 1$ reproduces very closely the results obtained with the progressive (pro - rich) case. The remaining ϕ values produce slightly more progressive (pro - rich) incidence patterns than the reference cases, but it should be pointed out that the differences are not significant enough to radically challenge the incidence patterns obtained with the use of the traditional method of distribution.

In fact, as figures 5.11 and 5.12 show, the incidence curves generated with the low quantity scenario practically replicate the standard pattern. Furthermore, the three cases of the high quantity scenario are also intimately associated with the standard incidence pattern, departing slightly only from the first to the fourth decile, to underline a disagreement of degree but not of tendency.

This is, in sum, a major finding of the study: whether the method traditionally applied in the literature or Aaron and McGuire's methodology is used to distribute pure public goods and services, and whether the progressive (pro - rich) or the regressive (pro - poor) scenario is used, the incidence pattern resulting from the standard case remains firm.

Table 5.9
Costa Rica: Incidence of Public Expenditures, according to the Broad Income concept
using the Aaron and McGuire Methodology, and the Standard, Regressive and Progressive Cases, 1988
(Percents)

Concept	Deciles									
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth All Deciles
$\phi=1$ $\phi=1.5$ $\phi=2$	Low Quantity of Pure Public Goods and Services 1/									
	580.8	96.9	67.4	51.6	46.9	45.2	39.8	37.0	33.1	32.9
	561.2	92.0	63.9	48.9	44.9	43.5	38.9	36.9	33.6	36.4
$\phi=1$ $\phi=1.5$ $\phi=2$	549.7	88.7	61.2	46.6	42.8	41.6	37.5	36.2	33.5	40.1
	High Quantity of Public Goods and Services 2/									
	459.0	86.9	63.6	50.8	47.2	45.6	41.5	39.0	35.8	35.1
Standard Regressive Progressive	419.1	76.1	55.8	44.7	42.4	41.6	39.2	38.8	37.0	42.9
	398.5	69.1	49.9	39.6	37.8	37.3	36.1	37.1	36.7	51.0
	The Reference Cases									
Standard Regressive Progressive	601.7	102.5	70.1	53.0	47.4	45.9	39.3	35.9	32.3	31.7
	797.5	124.3	79.1	59.2	49.9	50.1	39.5	33.8	28.1	22.1
	448.1	84.8	60.6	47.5	42.5	42.5	37.5	38.9	36.9	38.0

1/ Only General Expenditures are treated according to Aaron and McGuire Methodology. Specific Expenditures are assumed to have some pure public good component, but this has been distributed according to assumptions of table 5.3

2/ General Expenditures and the pure public good component of specific expenditures are treated according to Aaron and McGuire methodology. The pure public good component fraction of each specific good or service is assumed to be as follows: Health and Sanitation (25), Education (25), Social Security (25), Interest on public Debt (25), Road Expenditures (5), Housing and Urban Development (25), Promotion of Agricultural Production (3), Economic Promotion (10), Recreation and Culture (25)

Source: Author' estimates

Figure 5.11 Costa Rica: Incidence of Public Expenditures According to the Broad Income Concept, Using the Aaron & McGuire Methodology for the Low Quantity of Public Expenditures Cases and the Standard Assumption, 1988

Figure 5.12 Costa Rica: Incidence of Public Expenditure According to the Broad Income Concept, Using the Aaron & McGuire Methodology for the High Quantity of Public Expenditure Cases and the Standard Assumption, 1988

Decomposition of the Gini coefficient

One additional piece of evidence with respect to the impact of public expenditure on the distribution of income in Costa Rica is presented in appendix table V.9. Returning to the standard case, the comments previously made regarding the concentration of the benefits derived from the public expenditures categories under study are reconfirmed here. The concentration of social security expenditures in the lower part of the distribution is reflected by a negative pseudo Gini (- 0.21), while the very low degree of concentration of health and sanitation, education and general public goods is reflected by Gini values of 0.05, 0.12 and 0.18 respectively.

The highest Gini values are shown by road expenditures (0.48), housing and urban development (0.64) and interest on public debt (0.42). The remaining public expenditures categories, show degrees of concentration close to that of the Broad Income. As a result of this diversity in the concentration level in the public provision of the goods and services, the overall Gini of the benefits is estimated at 0.13. The largest contribution to this overall degree of concentration stems from general public goods, interest on public debt, road expenditures and housing and urban development expenditures, while social spending reduces it in a very significant proportion. Thus, the largest contribution to the equalization of benefits derived from public expenditures arises from health and sanitation, education and social security.

Public expenditures and income redistribution

What is the meaning of these results in relation to the redistribution of income in Costa Rica? Table 5.10 compares the income distribution structure without public expenditure, as was presented in chapter 3, with the distribution of income after the benefit of public expenditures have been added, for the standard case.

The concentration degree of both the Basic and Broad Income with public expenditures, declines to the same level, the Gini coefficient reaching 0.31 for both concepts. In other words the concentration of the Basic Income as measured by the Gini coefficient falls from 0.36 to 0.31 whereas the concentration of the Broad Income declines from 0.39 to 0.31, by all accounts, a reduction of significant proportions.

Thus, while in chapter 4 we saw that taxes are not used as an instrument of income redistribution, the findings presented in this chapter reveal that public expenditure fulfills indeed this social function. Fundamental elements of this policy are the provision of health and education services and the operations of the social security network, i.e., the efforts that the country has undertaken in the area of social development.

These income redistribution effects can be better visualized by means of the Lorenz curves presented in figures 5.13 and 5.14. The Basic and Broad Income before public expenditures are represented by interrupted lines while their respective after public expenditure counterparts are depicted by dotted lines. It can be seen in these figures that the

Table 5.10
Costa Rica: Basic and Broad Income with and without Public Expenditure, 1988 1/
(Millions of Colones and Percents)

Deciles	Income without Public Expenditure			Income with Public Expenditure		
	Basic Income	%	Broad Income	Basic Income 2/	%	Broad Income
First	382.3	2.2	124.2	738.2	3.2	871.5
Second	716.6	4.1	535.1	1,162.0	5.1	1,083.5
Third	942.4	5.4	776.0	1,405.8	6.2	1,320.2
Fourth	1,104.8	6.4	992.2	1,547.9	6.8	1,518.2
Fifth	1,232.8	7.1	1,186.5	1,710.9	7.5	1,748.3
Sixth	1,547.7	8.9	1,310.2	2,023.2	8.9	1,910.9
Seventh	1,767.2	10.2	1,661.6	2,287.9	10.0	2,315.3
Eighth	2,187.1	12.6	2,109.4	2,279.8	10.0	2,866.5
Ninth	2,779.5	16.0	2,501.8	3,422.8	15.0	3,309.0
Tenth	4,674.3	27.0	4,471.3	5,754.9	25.2	5,889.4
Total	17,334.4	100.0	15,668.7	22,833.3	100.0	22,833.3
Gini Coefficient		0.36			0.31	

1/ Estimates based on the standard assumption

2/ Transfers have been excluded from public expenditures

Source: Author's estimates

Figure 5.13
Costa Rica: Lorenz Curves of Basic Income with and without Public Expenditures, 1988

distance of the Broad Income line vis - à - vis the dotted line is wider than the distance between the Basic Income and the dotted line. The redistribution effect in the case of the Broad Income base takes place especially in the lower part of the distribution. In the case of the Basic Income concept, it essentially spreads out along the middle section. In other words, if transfers are excluded only a redistribution movement in favor of the middle class is shown but if they are incorporated, the more complete picture of a redistribution process toward the lower and lower middle income groups, becomes apparent.

Summary of findings

In summary, the following are the major findings of this chapter. Social spending is by far the largest component of public expenditure in Costa Rica, followed by general public goods and interest on public debt. Among the social spending items, health and sanitation and education show a very even distribution of benefits by income brackets, while social security is significantly biased toward the lower income groups. The remaining concepts exhibit a rather pro - rich concentration pattern.

The principal components of the basket of public goods and services of a typical middle income family are health and sanitation services, education and general public goods. For the poorest family these components are social security and health and

sanitation, whereas for the top income families the basket is basically composed of general public goods, interest on public debt, health and sanitation services, urban development and road expenditures.

The overall incidence of public expenditure is very regressive (pro - poor) for the first half of the income distribution and mildly regressive (pro - poor) thereafter, regardless of the income concept used as a reference. The incidence pattern of both urban and rural regions is very similar to this general pattern. These results, based on the standard case, are not seriously challenged by the pro - poor or pro - rich. Neither are they challenged by the use of the Aaron and McGuire methodology for the distribution of pure public goods.

Finally, overall, the distribution of the benefits of public expenditures contributes to the reduction of inequality. If the Basic Income is used as a reference, the reduction of inequality appears to benefit middle income groups. However, if the Broad Income base is used, it is possible to see that the improvement actually reaches both the lower and middle income groups.

It is the task and purpose of the next chapter to blend these results with those presented in the previous chapter, so as to produce a final assessment of the overall redistributive impact of the Costa Rican fiscal system.

CHAPTER 6

NET FISCAL INCIDENCE IN COSTA RICA

Chapters 3,4 and 5 have extensively discussed the characteristics of the pre-fisc size distribution of income, the incidence of taxes and the incidence of public expenditures. This chapter provides a synthesis of the results, thus far presented, by examining the magnitude and features of net fiscal incidence in Costa Rica. Building on a single summary indicator of the incidence of taxes and public expenditures, it assesses the simultaneous impact of both sides of the budget upon the economic position of Costa Rican families.

The chapter is composed of two parts. The first addresses some key methodological aspects of the net fiscal estimates. In particular, the treatment of the asymmetry between the magnitude of taxes and public expenditures (i.e., the fiscal deficit) is discussed, as is the development of some simulation experiments, based on a combination of the scenarios that were used in chapters 4 and 5.

The second part analyses the findings of the chapter, starting with the Broad Income base and the standard scenario, including the deficit. Later, it examines the sensitivity of these results given the use of alternative scenarios, optional income concepts and alternative treatments of the deficit.

6.1 Methodological Considerations

The net fiscal incidence estimates are obtained by subtracting the effective tax rates from the effective public expenditure rates. These estimates are indicative of the relative impact that tax payment and public expenditures benefits have on the income position of families.

The construction of this set of net fiscal incidence estimates must take into account the limitations and characteristics of each of its components, that is, the features of the income base, the distribution of the tax burden and the allocation of public benefits. Likewise, it should consider the existence of an unbalanced budget and the nature of the underlying analytical scenario.

On the Basis of the Analysis

In estimating, assessing and interpreting the net incidence of the public budget, it is necessary to bear in mind the methodological features and limitations of the estimates pertaining to each of the previously examined components of this analysis - the size distribution of income, the distribution of taxes and the allocation of public expenditures.¹

As regards the size distribution of income, it is worth recalling that the estimates are based on the Income and Expenditure Survey, undertaken by the Directorate General

¹See methodological sections of chapters 3, 4 and 5.

of Statistics and Census of Costa Rica in 1988. In chapter 3, three working income definitions were provided: Basic Income, Broad Income and Adjusted Broad Income.² The first reflects the income controlled by families and is directly estimated from the survey. The second is meant as a “neutral income counterfactual” in the sense that it provides a comprehensive measure of income before the government redistributes it by means of transfers, goods, services and taxes. Thus, it differs from the first definition in that it excludes the transfer component. The third provides the most complete income measure presented in the study, for this base acknowledges the fact that government redistributes income through both taxes and public expenditures. Therefore, it takes into account tax payments and benefits of the provision of public goods and services.

Thus far the structure of the Basic and the Broad Income bases have been studied in detail and have served as reference for furnishing separate estimates of the incidence of taxes and public expenditures. The structure of the Adjusted Broad Income base will be used for the first time in this chapter, to examine the combined redistributive effect of taxes and public expenditures. The interpretation of the results based on these income definitions should take into account the caveats concerning the estimation of an income counterfactual, commented on in chapter two.³

With respect to taxes, it may be recalled that, in order to deal with various possible incidence patterns, a number of assumptions derived from the conclusions of the

²See section 3.3.

³See section 2.3.1 of chapter two.

Harberger model, in the context of a small and open economy, were set forth.⁴ This originated the definition of three case scenarios: one based on competitive conditions (standard) and two others intended to test the sensitivity of the standard case and reflect alternative views on the subject of tax incidence, cases that were called regressive and progressive. The presentation of the tax incidence estimates have taken both the Basic Income and the Broad Income concepts a basis for reference.

Concerning public expenditures, in the preceding chapter these were divided into transfers, specific goods and services and general or pure public goods and services.⁵ Transfers were treated as negative taxes, specific goods were distributed with the help of indicators that approximate the consumption of these goods, and general or pure public goods and services were allocated by income, by the number of families in each income bracket and according to the methodology developed by Aaron and McGuire (1970)⁶. Likewise, three case scenarios - standard, progressive and regressive - parallel to those of the tax incidence analysis have been built and the estimates of public expenditure incidence have been provided for the Basic and the Broad income bases.

⁴ See section 4.2

⁵ See section 5.2

⁶ Aaron and McGuire, op.cit. See section 5.2.2 of chapter five.

Up to this point, the analytical framework has been based on the presumption of a balanced budget. However, as it is shown in table 6.1, Costa Rica actually has a deficit. The following section considers possible amendments to the estimates to account for an unbalanced budget.

The Fiscal Imbalance and its Treatment

In order to understand the nature of the problem, it is important to start by considering the composition of the deficit. As Gillespie has indicated, for fiscal incidence purposes, an imbalance is made up by a fiscal policy component and an export differential component.⁷ The first is derived from a specific economic policy decision while the second results from the fact that the magnitude of exported taxes may be different from the magnitude of exported public expenditure benefits.

To be more specific, in order to examine the concrete case of Costa Rica, we have prepared the figures provided in table 6.1. As this table shows, the structures of taxes and expenditures thus far handled in this study entail a first - level fiscal policy deficit that amounts to 11,060 million colones, or 12.5% of total effective expenditures. To arrive at a working level of the deficit, this figure should be adjusted by the relationship between

⁷Gillespie (1980), op.cit., pp.127,128.

Table 6.1
Costa Rica: Public Budget Imbalance, 1988
(Millions of Colones)

Concept	Scenarios		
	Standard	Regressive	Progressive
Expenditures	88,468	88,468	88,468
Revenues	77,408	77,408	77,408
Deficit	11,060	11,060	11,060
Adjustment for Exported Shares			
Exported Taxes	0	0	0
Exported Benefits	-2,494	0	-3,563
Balance	-2,494	0	-3,563
Deficit	8,566	11,060	7,497

Source: Tables IV.1, 4.2, V.1 and 5.2.

exported taxes and exported benefits of public expenditures. The adjustment, in turn, varies depending on the scenario under consideration.

In effect, while no taxes are assumed to be exported, the benefits of expenditures associated with servicing the external public debt have been assumed to remain fully in the territory if they are considered to be an input of the provision of goods and services (regressive scenario), to be fully exported if they are taken as benefits to the creditors (progressive scenario), and only partially exported if they are considered to be part an input and part a benefit (standard scenario). Thus, in the regressive (pro - poor) scenario the final imbalance is equivalent to the original one (11,060 million colones), while in the progressive (pro - rich) scenario it reaches its lowest magnitude (7,497 million colones) and in the standard case it assumes an intermediate level (8,566 colones).

Arithmetically, the effect of the deficit is to raise the value of public expenditure benefits received by the family units, i.e., it entails a increase in gross income for the benefited families. One can assume that taxes equivalent to the deficit are raised to cover the deficit , so that the increase in income is compensated by tax levies; in other words, that there is no net increase in family income. Alternatively, one can assume that no extra taxes are levied and therefore that the deficit does entail a full net increase in the family income.

The solution is not straightforward. In effect, the precise net impact of the deficit upon the income level actually depends on the model of income determination underlying

the analysis.⁸ In a setting characterized by full employment, price level stability and no savings, the deficit may be thought to increase the national income level and the income received by those who directly receive the benefits of public expenditures. The case has been explained by Gillespie:

“...let us assume that within the context of an economy where all private income is spent on investment or consumption, full employment is automatically determined, and price - level stability is automatically assured (by a money supply that increases at the same rate as real income increase), a public sector is introduced. In our classical economy, the real income of A and B prior to the introduction of the public sector \$1,000 each, the government collects taxes and provides public expenditures such that a net fiscal amount of \$200 is paid to A. B experiences no change in his net position and the total deficit is recorded as \$200 [Gillespie assumes that the government finances the deficit through conventional methods]. A's income after the public sector is introduced is \$1,200 and B's income is the same as before, \$1,000. So far the methodology used throughout this study [as well as throughout this thesis] would have imputed a net fiscal rate of +20% to A and zero to B.”⁹

However, if price stability is not assured, under full employment excess expenditures by the public sector would lead to inflationary pressures that would erode the real value of the benefits provided by the public sector, and would entail an income loss for those who may not receive any additional income from this public policy. Put in other words, continuing with the above example,

“in a full employment setting increased expenditures of ten per cent (from \$2,000 to \$2,200) result in a bidding up of the prices of goods and services until the general price level rises by ten per cent. A's real income after the

⁸W.I. Gillespie, Ibid. See also W.I. Gillespie, The Incidence of Taxes and Public Expenditures in the Canadian Economy. Study No. 2 of the Royal Commission on Taxation (Ottawa: Queen's Printer, 1966), chap IV, on Net Fiscal Incidence and Richard Musgrave et.al., “The Distribution of Fiscal Burdens and Benefits”, in Public Finance Quarterly (Vol. 2, No.3, July, 1974), pp. 301.

⁹W.I.Gillespie (1966), op.cit, pp.166 - 67

introduction of the public sector becomes \$1,091, while B's real income becomes \$909. In other words, inflationary pressures have led to a redistribution of real income that would be similar to a 9.1% tax on the income of B and a transfer of the same amount to A. This calculation shows that our analysis would have overstated the net positive real fiscal benefit to A and failed entirely to record the net fiscal burden to B."¹⁰

Further, in a less than full employment context, inflationary pressures would diminish and there would be room for the deficit to increase the global income level and alter its distribution pattern. That is,

"if we were to assume an economy where unemployment could occur, then the reasoning above would be totally unacceptable. To the extent that resources are unemployed, then inflationary pressures are reduced. To the extent that the deficit employs formerly unemployed resources, then because of a multiplier effect on incomes, there will be a higher level of output and additional differential net fiscal benefits due to this factor."¹¹

In order to explore the potential implications of the deficit, a wide range of alternative scenarios constituting variations, additions or extensions of the above could be defined. The obvious conclusion is that there is no clear, preferable, or determinant context within which the impact of the deficit can be evaluated, and therefore, that the results of this impact cannot be predicted *a priori*.¹²

¹⁰Ibid.

¹¹Ibid. pp. 167 - 68

¹² Thus far we have referred to the imbalance as the deficit. However, note in table 6.1 that in the standard and progressive cases the adjustment for exported taxes and expenditures results instead in some sort of a surplus: the benefit assumed to be enjoyed by foreigners are greater than the taxes that are assumed to be exported. This indicates that taxes paid by Costa Ricans are used to provide benefits to foreigners and there seems to be a case of an income loss for Costa Rican families. While this may be the case.

Due to these technical difficulties, the standard practice in available empirical investigations of net fiscal incidence has been either to assume a full positive income impact of the imbalance, by ignoring the eventual need for compensating taxes, as in Johnson (1968), Reynolds and Smolensky (1977), Ruggeri et.al.(1996), and Gillespie (1980) in one of his net incidence experiments, or to assume a null net income level impact, by introducing a set of taxes equivalent to the magnitude of the deficit, as in Musgrave et.al. (1974) and Gillespie (1980).¹³

This study takes a similar stance: it is beyond the scope of the thesis to specify and test an income determination model to investigate the hypothetical implications of the deficit. Thus, in agreement with the standard treatment given to this subject in the literature, the study evaluates the results of two experiments. In the first, the pattern of net fiscal incidence including the deficit will be estimated; in other words, no taxes will be assumed to be raised to compensate for the deficit. In the second, the net incidence pattern will be estimated, assuming that extra taxes sufficient to compensate for the deficit are raised.¹⁴ These taxes, in turn, will be distributed in two manners: on the one

again, as far as the precise effect of this “surplus” upon the level and distribution of income is concerned, just as in the previously mentioned case, it also depends on the underlying model of income determination, i.e., the treatment of this component is a potential subject of the same previously mentioned complications.

¹³J.A. Johnson , “The Incidence of Government Revenue and Expenditures”, a study for the Ontario Committee on Taxation (Toronto,: Queen’s Printer, 1968), Reynolds and Smolensky, op.cit., G.C. Ruggeri, D. Van Wart, R. Howard, The Government as Robin Hood, (Kingston, Ont.: Queen’s University, 1996), Gillespie (1980), op.cit., Musgrave (1974), op.cit.

¹⁴These taxes can be interpreted as the present value of tax levies that the families are certain to pay in the future to cover the present deficit.

hand, in proportion to the size distribution of income; on the other, with respect to the distribution of the total tax burden, as estimated in chapter 4.

We recognize that this treatment of the imbalance, although applied in other studies on the subject, is not completely satisfactory. As in the example above, the first experiment may overstate the net benefits of public sector policies - for it may understate the burden entailed by the deficit. The second experiment may understate the net benefits of public policies - for it may overstate or mis - distribute the burden of the hypothetical financing mechanism of the deficit. As such, they may represent two extreme case - experiments that set boundaries to the estimates. A more refined conclusion than the one reflected by these experiments would require an investigation beyond the scope of this work. However, as Gillespie has argued, the treatment applied in this study, represents a plausible method for addressing the problem, particularly if one bears in mind that the emphasis of the work is more on relative magnitudes than on absolute figures.¹⁵ As a matter of fact, it will be seen below that the use of either method to treat the deficit does not significantly alter the final fiscal incidence results.

In sum, we are left with two scenarios for the treatment of the deficit, one that includes the deficit and another that eliminates it. We are also left with two subcases concerning the elimination of the deficit, one that assumes the compensating taxes to be distributed in proportion to the distribution of income and another in which they are

¹⁵Gillespie (1980), op.cit. pp. 129

distributed according to the overall tax burden. This set of cases should be treated in combination with the scenarios and experiments already developed in previous chapters.

Possible Fiscal Incidence Experiments of Interest

Table 6.2 summarizes some of the experiments that would result from the combination of the scenarios developed in the preceding chapters and the treatment of the fiscal unbalance. The first row sums up the cases in which the deficit is not eliminated. In order to produce the standard experiments (S1, S2, S3), the standard results of both taxes and public expenditures incidence estimates must be combined. For the pro - poor cases (PP1, PP2, PP3), the pro - poor scenarios of both sides of the budget, that is, progressive taxation and regressive (pro - poor) expenditures, should to be put together while the pro - rich cases (PR1, PP2, PP3), require the integration of the equivalent treatment of taxes and public expenditures, i.e., regressive taxation and progressive (pro - rich) expenditures.

Our focus is on the results of the five experiments located in row one and column one, that is, all of those that include the deficit, irrespective of the scenario, and all of those that use the standard scenario, irrespective of the treatment of the deficit. The first group (row one) is intended to complete the picture that was offered in previous chapters, for each side of the budget. The second (column one) seeks to test the sensitivity of the standard scenario, under alternative treatments of the deficit.

Table 6.2
Costa Rica: Possible Net Fiscal Incidence Experiments of Interest

Deficit Treatment	Scenarios			
	Standard: Standard Taxation Standard Benefits	Pro-Poor: Progressive Taxation Regressive Benefits	Pro-Rich: Regressive Taxation Progressive Benefits	
Deficit Included	Experiment S1	Experiment PP1	Experiment PR1	
Deficit Eliminated				
Taxes Proportional to Income	Experiment S2	Experiment PP2	Experiment PR2	
Taxes Proportional to Tax Burden	Experiment S3	Experiment PP3	Experiment PR2	

One may suggest the derivation of another set of sub - cases within the standard scenario, to take into account the alternative treatments given to general expenditures in chapter 5, including the Aaron and McGuire approach.¹⁶ However, as will become apparent below, variations do not appreciably change the overall pattern of fiscal incidence resulting from the application of the standard scenario. In view of the fact that they supply no additional information to the analysis, the results based on these possible subcases and the rest of possible experiments suggested in table 6.2 are disregarded.

In sum, the analysis that follows shows complete results of the application of the standard hypothesis given alternative treatments of the deficit, as well as the results obtained within the pro - poor and pro - rich contexts when the deficit is not eliminated. In addition, detailed estimates take the Broad Income base as a reference, but the effects of the use of both the Basic and the Adjusted Broad Income bases are also offered in the study.

6.2 Public Budget and Income Redistribution in Costa Rica

The Overall Pattern of Fiscal Incidence

As noted above, it has been decided to use the Broad Income base, that is, the pre-fisc income base, to provide the more complete net fiscal incidence results. The

¹⁶See section 5.3 of chapter five.

advantage of this base, as has been said in chapter 3, is that it constitutes an indicator of the theoretical measure of private income in the absence of the government, therefore serving as a hypothetical neutral income base.¹⁷

In order to assess the net impact of the budget, i.e., the net fiscal incidence, the effective tax rates must be subtracted from the effective public expenditure rates. Thus, a family group is a net gainer if the result of this operation is positive and a net loser if it is negative.

Table 6.3 and figure 6.1 summarize the estimates for the whole country. Net fiscal incidence is positive and very regressive (pro - poor) for the first two deciles, and positive but mildly regressive from this point to the sixth decile. It is negative and mildly regressive thereafter. This means that the intervention of the government provokes a redistribution of income from the upper four income brackets to the remaining Costa Rican families.

The redistribution that takes place from the upper two deciles to the poorest two deciles is especially noteworthy. This overall incidence pattern, as we have seen in the two preceding chapters, is the result of the combination of a practically neutral tax incidence pattern and a regressive (pro - poor) public expenditure incidence structure. It

¹⁷See F. Vermaeten, et.al. op.cit., pp, 353, Gillespie (1980), op.cit., pp.130, and G.C. Ruggeri, D. Van Wart, R. Howard, The Government as Robin Hood, (Kingston, Ont.: Queen's University, 1996), pp.13. As the latter authors have indicated, the Broad Income base can also be interpreted as a post - fisc income base derived from a distributionally neutral budget.

Table 6.3
Costa Rica: Net fiscal Incidence,
According to the Broad Income concept, 1988 ^{1/}
(Percents)

Deciles	Total Country Incidence
First	500.1
Second	63.7
Third	32.4
Fourth	14.1
Fifth	9.3
Sixth	3.9
Seventh	-0.2
Eight	-4.1
Nineth	-9.2
Tenth	-10.7
Total	4.6

^{1/} For the Standard Scenario

Source: Author's estimates

Figure 6.1
Costa Rica: Net Fiscal Incidence, according to the Broad Income Concept, 1988

is worth noting that the positive incidence average of 4.6% is a reflection of the existence of a budget deficit.

Another way of examining the net incidence pattern is by comparing the pre and post - fisc income shares by deciles. These figures are found in table 6.4. The comparison shows that families located in the first half of the income structure (the less wealthy) are net gainers of the government tax and expenditure action, while the opposite occurs with families pertaining to the second half of the distribution (the wealthier). Again, families in the first decile enjoy the greatest net gain, their share increasing from 0.8% to 4.5%, and those in the richest group suffer the largest loss, for their income share declines from 28.5% to 24.4%.

Regional Fiscal Incidence Patterns

The estimates by region are presented in table VI.1 of the appendix and figure 6.2. The general regressive (pro - poor) pattern in net fiscal incidence for the country is replicated in both the urban and rural regions. Each type of region, however, shows noteworthy features. In the cities, the relative positive impact of the budget upon the poorest families is significantly larger than in rural areas (592% against 342% in the first decile), while its negative effect on the richest families is milder (- 10% compared with - 13% in the last decile). Further, it was seen that in the country the net fiscal incidence changes from positive to negative as of the fourth decile; however, in the cities it

Table 6.4
Costa Rica: Net Fiscal Incidence according to the Share Measure, 1988 ^{1/}
(Percents)

Deciles	Broad Income Shares (1)	Adj. Broad Income Shares (2)	Net Fiscal Incidence (2)-(1)
First	0.8	4.5	3.8
Second	3.4	5.3	1.9
Third	5.0	6.3	1.3
Fourth	6.3	6.9	0.6
Fifth	7.6	7.9	0.3
Sixth	8.4	8.3	-0.1
Seventh	10.6	10.1	-0.5
Eight	13.5	12.3	-1.1
Nineth	16.0	13.9	-2.1
Tenth	28.5	24.4	-4.2
Total	100.0	100.0	0.0

^{1/} For the Standard Scenario. Deficit Included

Source: Author's estimates

Figure 6.2
Costa Rica: Net Fiscal Incidence, According to the Broad Income Concept, by Regions, 1988

becomes negative as of the sixth and in rural areas only as of the eighth decile. In other words, in the cities, families placed in the upper half of the distribution receive less benefits than what they pay in the form of taxes, while in rural areas this only occurs with families located in the upper three deciles. Finally, the overall relative impact of the deficit is larger in rural areas than in the cities (6% and 4%, respectively).

Appendix table VI.2 sheds light on the subject from the income share perspective. Clearly, families located in the upper half of the distribution, irrespective of the region where they live, are net losers of the redistribution process generated by the government. In other words, both in the cities and in rural areas, the government causes an income redistribution process that improves the relative position of families in the lower half of the income distribution structure, and deteriorates the relative position of those located in the upper half of the structure. The evidence also suggests that the improvement enjoyed by the very poor families (first decile) is greater in the cities than in rural areas (4.3% compared with 3.3%) but, at the same time, the loss suffered by upper income urban families (tenth decile) is less than the loss of their rural counterparts (- 3.5%, against - 5.5%). In addition, rural families located in the second to fourth deciles obtain greater relative gains than urban families in similar positions. The difference between the net fiscal incidence pattern between regions, is explained by the difference observed in their respective income structures, the regional differences in the burden of taxes and the greater concentration of public services in urban areas.

Changes in the Concentration of Income and the Lorenz Curve

The magnitude of the Gini coefficient and the comparison of the pre and post-fisc Lorenz curves provide additional information on the impact of the public budget upon the distribution of income in Costa Rica. As it was seen in Chapter 3, the Gini coefficient of the Broad Income base is 0.39. However, the corresponding coefficient of the Adjusted Broad Income base is only 0.28, that is, the post-fisc income distribution structure, as measured on the latter index, is significantly more uniform.

Figure 6.3 shows this effect graphically by comparing the Lorenz curves of the Broad and Adjusted Broad Income bases. It can be seen that when the impact of the budget is added, the Lorenz curve shifts inwards, closer to the equality line. Just as the fall in the magnitude of the Gini coefficient indicates, the income equalization process occurs along an extensive section of the size distribution of income, affecting especially the lower income brackets.

In sum, the evidence presented in this study consistently suggests that the Costa Rican public sector, through its budgetary action, induces an income redistribution process in favor of lower income families. By virtue of this effect, the size distribution of income becomes more equal, as both the Gini coefficient and the Lorenz curve show. The results presented in previous chapters suggests that this effect is chiefly achieved by means of the provision of public goods and services, for the overall impact of the Costa Rican tax structure appears to be essentially neutral.

Figure 6.3
Costa Rica: Lorenz Curves of Broad Income and Adjusted Broad Income, 1988

The use of Alternative Income Concepts

Are the above findings sensitive to the use of alternative income concepts?. Appendix table VI.3 and figures VI.1 and VI.2 supply the fiscal incidence estimates based on the Adjusted Broad Income and the Basic Income concepts.

These figures show that the general fiscal incidence pattern expressed by the Broad Income concept is consistent with the patterns obtained using the Basic and the Adjusted Broad Income concepts. The only significant variation is in the incidence levels observed in the first three deciles, a difference of magnitude but not of tendency. For the rest of the income structure the levels are very similar.

The difference between the three income concepts in the first deciles is certainly a reflection of the effect of social expenditures - especially transfers - on the relative income position of families located in these brackets. In effect, it may be recalled that Broad Income does not include transfers while the other two concepts do. However, Basic Income does not incorporate the array of public goods and services that, in addition to transfers, strongly benefit the lower income groups. It is understandable that the scale of incidence diminishes from the Broad to the Basic to the Adjusted Income concepts, at the lower income levels. Thus, the general fiscal incidence derived from the use of the Broad Income base is reaffirmed by the two other alternative income concepts.

When comparing the size distributions of income derived from the Basic and the Adjusted Broad Income bases, it is noted that the Gini coefficient falls from 0.35 to 0.28 once again, a very significant reduction indeed. This equalizing effect of the public

budget is shown in figure 6.4. When taxes and public expenditures are incorporated, the Lorenz curve shifts inwards, closer to the line of equality. However, as was expected, the distance between the Lorenz curves of the Basic and the Adjusted Income bases is not as marked as the distance between the Lorenz curves of the Broad and the Adjusted Broad Income bases, especially at the lower income levels. This, naturally, reflects the slightly more equal distribution of the Basic Income base as compared with the Broad Income base produced by the incorporation of transfers within the former.

The Pro-poor and Pro-Rich Scenarios

Returning to the Broad Income base, the implications of the use of alternative scenarios is presented in table 6.5 and figure 6.5. Note, once again, that the findings obtained within the standard scenario are qualitatively similar to those obtained using the pro - poor and pro - rich experiments. The pro - poor experiment emphasizes the incidence of the budget on the lower income groups and extends the positive balance between taxes and public expenditures until the seventh decile, instead of until the sixth. It also strongly increases the negative impact of the budget upon the richest families (tenth decile), the incidence varying from - 10.7% in the standard scenario to - 24.7% in the pro - poor experiment. In addition, the average net fiscal incidence increases from 4.6% to 5.9% because, as may be recalled, no portion whatsoever of public expenditures is assumed to be exported.

Figure 6.4
Costa Rica: Lorenz Curves of Basic Income and Adjusted Broad Income, 1988

Table 6.5
Costa Rica: Net fiscal Incidence,
According to Alternative Scenarios, 1988 1/
(Percents)

Deciles	Standard	Pro-Poor	Pro-Rich
First	500.1	707.3	302.1
Second	63.7	84.5	39.5
Third	32.4	43.7	20.9
Fourth	14.1	22.6	6.8
Fifth	9.3	15.7	4.3
Sixth	3.9	14.4	2.8
Seventh	-0.2	3.5	0.1
Eight	-4.1	-2.6	0.6
Nineth	-9.2	-10.0	-2.1
Tenth	-10.7	-24.7	-5.4
Total	4.6	5.9	4.0

1/ For the Broad Income Concept

Source: Author's estimates

Figure 6.5
Costa Rica: Net Fiscal Incidence, According to Alternative Scenarios, for the Broad Income Concept, 1988

The pro-rich experiment strongly diminishes the incidence of the budget at all levels. Naturally, important positive reductions occur among the lower income families, the incidence on the first decile declining from 500.1% in the standard scenario to 302.1% in the pro - rich experiment. However, the negative impact of the budget upon the richest families is also markedly lessened, as reductions from - 9.2% to - 2.1% in the ninth decile and from - 10.7% to - 5.4% in the tenth decile show. As opposed to the pro - poor experiment, in the pro - rich case the amount of exported benefits is assumed to reach its highest level this being the reason why in this scenario average fiscal incidence also reaches its lowest level.¹⁸

The Compensation of the Deficit

Thus far the estimates have included the deficit. As was explained above, we have also explored two ways of eliminating the deficit, through the introduction of compensating taxes. In the first, compensating taxes are introduced and distributed according to the income distribution structure which is actually equivalent to a proportional downward shift of the whole post - fisc income structure. In the second, taxes are distributed according to the structure of the overall tax burden.

The results of these experiments for the Broad Income base and the standard scenario are presented in table 6.6 and figure 6.6. The two compensating tax scenarios

¹⁸See third column of table 6.1

Table 6.6
Costa Rica: Net fiscal Incidence, according to the Broad Income concept
with compensated and not compensated Deficit, 1988 1/
(Percents)

Deciles	Standard Incidence		
	Deficit not Compensated	Deficit Compensated <u>2/</u>	Deficit Compensated <u>3/</u>
First	500.1	495.6	488.9
Second	63.7	59.2	59.5
Third	32.4	27.8	28.2
Fourth	14.1	9.6	9.8
Fifth	9.3	4.7	5.1
Sixth	3.9	-0.6	-0.7
Seventh	-0.2	-4.7	-4.5
Eight	-4.1	-8.7	-8.6
Ninth	-9.2	-13.8	-13.8
Tenth	-10.7	-15.3	-15.4
Total	4.6	0.0	0.0

1/ Estimates based on the Standard Scenario

2/ Compensation with taxes distributed in proportion to Broad Income

3/ Compensation with taxes distributed in proportion to the overall tax burden

Source: Author's estimates

Figure 6.6
Costa Rica: Net Fiscal Incidence, according to the Broad Income Concept, with Deficit Compensated and not Compensated, 1988

produce very similar net fiscal incidence results. As expected, the elimination of the deficit reduces the level of positive incidence and increases the level of negative impact of the budget. The relative effect is greater for middle and higher income levels. For the sixth decile the balance becomes negative; for the following decile, the negative impact increases from - 0.2% to - 4.7%,; and for the tenth decile, it rises from - 10.7% to - 15.3%. However, as figure 6.6 clearly shows, the overall tendency of the incidence pattern observed when the deficit is incorporated is not affected by its elimination.

Summary of Findings

This chapter has provided the findings regarding the net fiscal incidence of the government in Costa Rica, synthesizing in this manner the results concerning the individual incidence of taxes and public expenditure presented in chapters 4 and 5.

A major problem facing the construction of a set of indicators of net fiscal incidence is the existence of a unbalanced budget. This problem was confronted by defining two scenarios: one including the deficit and another excluding it. In addition, these two scenarios were combined with the standard, the pro - poor and the pro - rich scenarios defined in previous chapters, to present results for five experiments.

The evidence based on the standard scenario and the Broad Income concept indicates that fiscal incidence is positive and very regressive (pro - poor) for the first two deciles, and positive but mildly regressive from the this point to the six decile. It is

negative and mildly regressive thereafter. This suggests that the government redistributes income from families in the upper four income brackets to families in lower income positions. This general net fiscal incidence pattern is reproduced in both the urban and rural regions.

With the incorporation of the budget, the Gini coefficient strongly declines from 0.39 for the Broad Income base - or from 0.35 for the Basic Income base - to 0.28 for the Adjusted Broad Income base, indicating that the income distribution structure becomes more uniform. This is also shown by an inward movement of the Lorenz curve.

The above results are not qualitatively altered by the use of alternative income concepts, substitute scenarios or alternative treatments of the deficit. In light of these results, it seems safe to conclude that the intervention of the government, through its taxing activities and the provision of goods and services, has a net income equalizing effect.

CHAPTER 7

SUMMARY AND CONCLUSIONS

This study has explored the effect of taxes and public expenditures on the distribution of income in Costa Rica. It has been motivated by the desire to contribute to the debate on the issue of income distribution and the role of the state in developing countries, and to collaborate in gathering empirical evidence on the role that the state has played in the development of Costa Rica.

It has been a first attempt to examine the issue with the support of the rich data base used in this investigation and with the overall scope and detail of this work. Because of this, its purpose has also been to stimulate further inquiry into the subject.

The study was designed to estimate and evaluate the size distribution of income in Costa Rica by deciles, estimate and assess the redistributive effects of the Costa Rican tax system, measure the incidence of government expenditures and furnish a set of estimates on the overall net fiscal impact of the public sector in Costa Rica.

It is built on the annual, as opposed to the lifetime, estimate procedure. It uses the implicit, as opposed to the explicitly calculated, general equilibrium model methodology. It constitutes an empirical inquiry rather than a theoretical elaboration, and examines exclusively the direct impact of taxation and expenditure policies of the Costa Rican government, instead of the wider scope of effects of all its actions on the size distribution of income.

The work relies heavily on the Income and Expenditure Survey, completed by the Directorate General of Statistics and Census of Costa Rica (DGSC) in November of 1988. The latter is, therefore, the reference year of the study.

To produce the desired results, three income definitions are used: Basic Income (BY), Broad Income (Y) and Adjusted Broad Income (ABY). The first is a comprehensive measure of income before the government redistributes it through taxes, goods and services, but includes transfers. It is essentially the survey's household income definition. The second represents a measure of private income only, i.e., it excludes taxes and all government benefits. It is the same as BY less transfers. The third is a comprehensive measure of income, after the government has redistributed by means of tax collections, and by the provision of transfers, goods and services.

The estimates have been elaborated for three scenarios: standard, pro - poor and pro - rich. Also, in the case of public expenditures, additional calculations were carried out to test the Aaron and McGuire methodology.

Concerning net fiscal incidence, the estimates were obtained by subtracting the effective tax rates from the effective public expenditure rates. They were produced for the two extreme cases of inclusion and hypothetical elimination of the fiscal deficit.

This chapter contains three sections. In the first, the main results of the thesis are summarized. In the second, the conclusions of the study are presented and discussed. In the third, some topics that require further investigation are mentioned.

7.1 Summary of Findings

The main findings of this thesis are the following :

- The Gini coefficient of the Basic Income, which represent a measure of the overall pattern of inequality, reaches a level of 0.36 for the whole country. The amount of income received by the top decile is 12 times the level achieved by the poorest decile.
- Half of families live in urban areas but they absorb almost two thirds of total Basic Income. Inequality is slightly greater in rural areas, where the Gini coefficient reaches 0.35, compared with 0.33 for urban areas.
- Wage earners are the most important category of income recipients, at all income levels and in both rural and urban regions. Concurrently, wage income is the major factor component of Basic Income, averaging more than 60 percent for the whole country. Wages are followed by self employment income (22%), transfers (10%), other income (3%) and property income (3%).

- Broad income is more unequally distributed than Basic Income. The exclusion of transfers from the Basic Income (BY) substantially worsens the overall pattern of inequality. This is reflected by an increase in the country Gini coefficient from 0.36 for BY to 0.39 for Broad Income (Y) and of the ratio of income share of the top ten percent to the bottom 10 percent, from 12 to 36.
- The impact of transfers is reflected in both urban and rural regions, but because the transfers network is wider in the cities, the impact of this income component is greater in the cities than in rural regions.
- As in the case of Basic Income, almost two thirds of Broad Income are concentrated in urban regions. But, as opposed to that case, the unequal distribution of Broad Income is greater in urban regions than in rural areas: their respective Gini coefficients are 0.38 and 0.37 and their respective income relations between the top and the bottom deciles are 35 and 26.
- Total tax collection amounted to 77.4 billion colones in 1988. This represents 22% of Costa Rica's GDP, 37% of Basic Income, or 47% of Broad Income. Almost one third of overall tax collections falls on payrolls, one third on domestic sales, one fifth on international trade, one tenth on income and the

remaining 4% on vehicles and real state. This composition is typical of developing countries.

- Sixty percent of tax collections is paid by families in the upper three deciles. The richest families (tenth decile) pay fifteen times more than the poorest families while the middle class (deciles four to eight) contribute with one third of total revenues.
- The general sales tax, excise taxes and import duties show a moderate distribution pattern, compared with social security contributions, the corporation income tax, personal income taxes, property taxes, and export taxes, which are more concentrated in the upper deciles.
- Social security contributions are the major component of the tax invoice paid by the Costa Ricans. This tax component is very important for the middle class and significantly lower for the poorest families. The general sale tax is the next important element of the invoice, followed by excise taxes and import duties. The property tax ranks last. In general, commodity taxes - the general sales tax, excise taxes, and import duties - are the heaviest components of the tax payments for all families.

- The average Basic Income incidence of the Costa Rican tax system is estimated at 37%. The overall tax structure is regressive for the first decile, mildly progressive up to the fifth decile, rather proportional up to the ninth decile and mildly progressive for the richest families.
- Social security contributions are very progressive up to the eighth decile and regressive thereafter. The general sales tax and excise taxes are regressive for the first decile mildly progressive up to the middle of the distribution and progressive for the upper income families. Import duties are basically regressive, a pattern reverted only for the third decile and the richest families. The corporate income tax is progressive from the first to the fifth deciles, and essentially proportional after this point. Export taxes show the same behavior, except for the last decile, where they become regressive. Personal income taxes, vehicle taxes and property taxes, show a pattern of light regressiveness for the poorest families, are proportional for the middle of the distribution and progressive for the richest families.
- When the Broad Income concept is used as a reference, the overall tax system becomes more regressive for the first decile and, in essence, proportional thereafter. The average incidence is 47%. The incidence patterns of each

individual tax category is basically the same as with the Basic Income concept but the levels of impact are greater.

- Almost two thirds of the overall amount of taxes are collected from urban tax payers. In each region, the distribution of taxes is very similar to that of the entire country. As to incidence patterns, the overall Basic Income incidence is 39% for rural households and 36% for urban areas. With the Broad Income concept, the average incidence of the tax system is slightly lower in the rural region than in the cities, along the entire income distribution structure. In both areas the tax system is very regressive for the poorest families, basically proportional for the following brackets up to ninth decile and mildly progressive for the richest families.
- The use of alternative incidence assumptions or scenarios, does not significantly alter the above general pattern of standard incidence. However, the regressive case stresses the absolute magnitude of the regressiveness for the first and second deciles, while the progressive case turns the system more progressive for the last decile. Thus, the conclusions obtained with the standard case are not contended but reaffirmed by the use of alternative sets of tax shifting assumptions.

- The introduction of taxes has only a fractional impact on the concentration level of the size distribution of income. In other words, the tax system has an almost negligible effect upon the national distribution of income. This suggests that the Costa Rican society has chosen not to use the tax system as an instrument of income redistribution.
- Public expenditure amounted to 88.5 billion colones during the year of reference. This represented 25% of the country's GDP, 41% of Basic Income or 46% of Broad Income.
- Social expenditure - health and sanitation, education and social security - is the major component of this global amount, accounting for 55% of the total. General expenditures - administration, defense and security - is the next important component of total expenditures (19%), followed by interest on public debt, expenditures on maintenance, construction of roads and related activities (6%), expenditure on urban and rural development (5%), agricultural and economic promotion (5%) and recreation and culture (1%).
- The proportion of expenditures corresponding to each decile from second to sixth is approximately 8%; the first, eighth and ninth take up between 10% and 11% each and the last decile absorbs 20 percent.

- The lowest concentration level corresponds to expenditures in health and sanitation, followed by education expenditures. Social security expenditures are strongly concentrated in the lower part of the distribution, with 35% of the total allocated to the first decile. In fact, the strong concentration of transfers in the lower part of the distribution structure is one of the most remarkable feature of the distribution of public expenditures in Costa Rica.
- A typical middle income family receives a basket of public goods and services in which health and sanitation, general public goods and education are the most relevant components. For the poorest families the most important items are health and sanitation and social security. For the richest the greatest weight is on general administration, interests on public debt, road expenditures, urban development and health and sanitation. The remaining public expenditure categories are of relative low importance in the respective baskets.
- Total incidence according to the Basic Income is estimated at 41% average. However, the incidence pattern is drastically pro - poor starting from 195% for the first decile and declining to 30% for the last decile. The strongest pro - poor behavior is observed in the first half of the income distribution, especially in deciles one to five.

- The distribution of social security is sharply pro - poor up to the third decile, proportional thereafter and shows a hint of pro - rich behavior at the very end of the distribution. Health and Sanitation expenditures are very pro - poor up to decile four, pro - rich from the fourth to the fifth decile and regressive thereafter. Expenditures on education are consistently pro - poor for the whole distribution with the exception of decile six to seven, where the pattern exhibits a hint of pro - rich tendency.
- General public goods are pro - poor all along the distribution structure, interest on public debt and road expenditures are mildly pro - poor at the beginning of the distribution and basically proportional for the remaining part of it and mildly pro - rich at the very end. The remaining headings are virtually proportional for the entire income structure.
- If the Broad Income concept is used as a reference, average incidence is estimated at 45.7%. In this case the relative impact ranges from 608% for the first decile to 31% for the richest families. Thus, the incidence pattern is strongly pro - poor from the first to the fourth decile and just mildly pro - poor thereafter. The incidence patterns by public expenditure category are the same as those of the Basic Income concept but the relative impact is greater.

- Sixty percent of total public expenditures is allocated to the cities. The distribution of public expenditure is slightly more uniform in rural areas than in the cities.
- The overall degree of expenditure incidence according to the Basic Income concept is estimated at 44.7% for the rural areas and 39.3% for the cities, compared with the 41.3% of the whole country. Both regions show an incidence pattern very similar to that of the whole country. The regional incidence pattern is basically the same if the Broad Income concept is used as a reference. There is only a difference of degree, especially in the first and the second deciles, due to the strong influence of transfers in the lower part of the distribution, for both urban and rural areas.
- The use of the alternative sets of assumptions does not change the basic conclusions derived from the standard case. The pro - poor case increases the relative importance of public expenditures for the first half of the distribution and reduces it for the last three deciles, while the opposite occurs with the pro - rich case.
- The conclusions of the standard case are consistent with the use of the Aaron and McGuire's methodology to distribute pure public goods and services.

Whatever method or scenario is used to distribute general public expenditures, the incidence pattern resulting from the standard case remains firm.

- With the incorporation of public expenditures, the concentration of Basic Income as measured by the Gini coefficient falls from 0.36 to 0.31, while that of the Broad Income declines from 0.39 to 0.31. In both cases the fall is very significant. Thus, while the tax system appear not be used as an instrument of income redistribution, it seems that public expenditures does fulfill this social function.
- Using the Broad Income base as a reference, the pattern of net fiscal incidence is positive and pro - poor for the first six deciles, and especially for the first two. It is negative and mildly pro - poor thereafter. Thus, actions by the government cause a redistribution of income from Costa Rican families in the upper four income brackets to the remaining families. This is the result of the combination of a practically neutral tax incidence pattern and a pro - poor public expenditure incidence structure.
- Families located in the first half of the income structure are net gainers of the government's tax and expenditure policies, while families in the second half of the distribution are net losers. Families in the first decile enjoy the greatest

net net gain, their income share increasing from 0.8% to 4.5%. Those in the richest group suffer the largest loss, for their income share declines from 28.5% to 24.4%. The general pro - poor net fiscal incidence pattern observed in the country is replicated in both the urban and rural regions.

- With the simultaneous introduction of both tax and expenditure policies, the Gini coefficient falls from 0.39 for the Broad Income base and 0.35 for the Basic Income concept to 0.28 for the Adjusted Broad Income base. Thus, the size distribution of income becomes significantly more uniform.
- The general fiscal incidence pattern estimated with the Broad Income concept is not challenged but reaffirmed by the Basic and the Adjusted Broad Income concepts. The only significant variation is in the incidence levels observed in the first three deciles, this being, however, a difference of magnitude but not of tendency. The findings are neither seriously challenged by the pro - poor and pro - rich experiments nor by the experiments that were carried out to eliminate the deficit.
- In view of the above, the results of this study seem to allow for the contention that the combined taxing and expenditure policies of the Costa Rican government, entail an income equalizing effect.

7.2 Conclusions and Final Reflections

The first major conclusion of this thesis is that although the tax system is quite regressive at the lower end of the distribution, because it is essentially proportional for the great majority of families, it has practically a neutral redistributive effect. The second conclusion is that the public provision of goods and services entails significant benefits to the poorest families, producing an important redistributive impact. The third major conclusion is that the combination of both sides of the public budget causes an income redistribution flow from families in the top fifty percent to families in the bottom fifty percent of the income distribution structure. In sum, the Costa Rican fiscal system redistributes away from upper and upper middle income families and in favor of lower and lower middle income classes.

This study has not questioned the magnitude of the redistributive impact of the fiscal system nor has it argued in favor of more or less redistribution. It has only attempted to establish whether or not the government causes an income redistribution process and in what direction. Those in favor of greater equality could argue for a stronger redistributive impact than the one here estimated. Those who may be enjoying the benefits of being in upper income strata may find the above results threatening to their interests. But the study takes no part with one or the other.

While this has been a stance of the study, in chapter 1 it was noted that for reasons associated with the confrontation of inequity and under-productivity, the

reduction of income disparities in developing countries is a desirable objective. The Costa Rican fiscal system seems to respond to this objective. In fact, there is no doubt that this is one of the reasons why this country has been able to perform well above many of its neighbors, as far as human development is concerned.

However, it has also been recognized that there are clear limits to the correction of income inequality through tax and expenditure mechanisms. As was commented in chapter two, the limits arise because, in the context of democratic societies, on the one hand, there is always the expectation of those in the bottom to eventually be in better income positions and, on the other, upper income groups normally have the political power to promote policies that protect their interests. Likewise, there is the latent fear that the redistribution process may introduce work disincentives, reduce the global economic product, and therefore, constrain the absolute amount of income available to every citizen.

Because of these limits, even if the above results may be indicative of the fact that the fiscal system in Costa Rica is working in a desirable redistributive direction, as international experience has shown, it is insufficient to rely solely on the fiscal system to correct income disparities.¹ A combination of public policies is necessary to ensure a sustainable income redistribution process. Some policies should act on the income generation process itself, others on correcting the end result of the economic activity.

¹See World Bank, Poverty: World Development Report 1990 (New York: Oxford University Press, 1990), pp 2,3.

For instance, it was seen that wages are the main income component in Costa Rica. Clearly enough, an effective income distribution policy should pay careful attention to every aspect related to the labor market: the wage determination process, the promotion of a productive use of the labor force and the development of an adequate institutional framework to protect the workers' rights.

But, simultaneously, these direct actions should be reinforced with complementary policies that by means of the provision of adequate basic services, such as health care, education, training, safe water and nutrition, enhance the participation of every citizen in the productive process at a level commensurate to their potentials. It is this combination of direct and indirect or, in the terminology of Ruggeri et.al. (1996), preventive and corrective policies, which can ensure that the pursuit of higher well - being levels for every individual is an attainable and sustainable social objective.²

The intelligent combination of preventive and corrective policies is not only a desirable but an unavoidable course of action for Costa Rica. In the context of pressing budget constraints, the capacity of the state to keep providing its citizen with basic services is declining. In fact, it can be argued that the results above presented are increasingly unsustainable, for they are based on a strong spending capacity of the state, which no longer exists.

To be more specific, it was noted above that during the post - second world war years and until the end of the cold war, Costa Rica enjoyed international financial

² Ruggeri, et.al. op.cit., pp. 92 - 93.

facilities that coincided with a strong determination of local policy makers to accelerate the development of the country. These facilities compensated for the insufficiency of the state to generate domestically the financial resources it needed to be able to play the leading development role it has actually fulfilled.

International circumstances have now changed and so has, for the worst, the capacity of the state to maintain its role under the same terms of the past. It is now less able to produce and provide a number of goods and services at the required standards, examples being the construction and maintenance of roads, airports, ports, personal security, and telecommunications. This is why a greater participation of the private sector in these activities is now being sought.

In terms of our interest on the distribution of income, if the country is to pursue the benefits of the market, and if at the same time the goal of maintaining a reasonable and socially acceptable distribution of income is to be given priority, the government should emphasize not only the promotion but also the strong regulation of the market.

I do not deny the virtues of the market as an efficient mechanism for allocating resources and stimulating economic growth. However, efficiency is an amoral concept and as such is perfectly compatible with the most extreme degree of inequality. As Musgrave and Musgrave (1984) have indicated,

“A distinction must be drawn between (1) the principle that efficient factor pricing use requires factors inputs to be valued in line with competitive factor pricing and (2) the proposition that the distribution of income among families should be fixed by the market process. Principle 1 is an economic rule that must be observed if there is to be efficient use of resources, be it in a market economy or in a planned economy. Proposition 2 is a different matter. For one thing, factor prices as

determined in the market may not correspond with the competitive norm. But even if all factor prices, including wages and other returns to personal services were determined competitively, the resulting pattern of distribution might not be acceptable. It involves a substantial degree of inequality..."³

Thus, the market solution may be rational for the functioning of the economic system, but not necessarily rational for the interest of the collectivity. State regulation of the market as well as preventive and corrective actions will continue to be instrumental in Costa Rica, in order to shape the distribution of income in accordance with the national interest.

As for the goods and services that the state will continue producing and providing, the Costa Rican public sector should make strong efforts to: i) improve their quality. Because of constrained resources and due to the rapid growth of the population, the quality of these services has been rapidly falling. ii) Strengthen the targeting of all of those which are subsidized, such as higher education and health services. As this work and the studies by Rodriguez (1986), Sauma (1986), IICE (1986), Trejos (1986) have shown, families of upper income groups unjustifiably enjoy of state subsidies in these areas.⁴ ii) Improve the budget elaboration system as well as the evaluation of its execution, so as to ensure a better connection between objectives, scarcity, priorities and efficiency in the spending process. As the constraints to the access of resources for public uses become stronger, the state should improve its management capacity.

³ R.A.Musgrave and P.B. Musgrave, op.cit., pp.11

⁴ See A. Rodriguez, op.cit, P. Sauma op.cit, IICE op.cit. and J.D. Trejos op.cit.

The tax system also deserves some comments. It has been interesting to find out that this system has essentially a neutral redistributive effect. However, with a strong reliance on goods and services taxes, its potentiality to become grossly regressive seems high.

Because of this and due to the possible reduction of the ability of the state to redistribute income through the spending side, the progressive elements of the tax system should be reinforced. In particular, the government's capacity to collect the personal and corporate income taxes must be improved. This is precisely the direction of some measures that the country has been recently implementing, including the modernization of the tax authority and the approval of a strong legislation to punish fraud, tax evasion and refusals to comply with formal obligations, such as the punctual presentation of tax returns, registration, timely payments, and the like.

The desirability of improving the productivity of income taxes is not only explained by fairness reasons. Due to the need of the government to rely more heavily on domestic resources, and because taxes on foreign trade are in the process of elimination or contraction, to facilitate the incorporation of the country in the world economy, it is also unavoidable to raise the productivity of taxes that will remain in the system. This can be done by rising the tax rates, redefining the tax bases or enhancing the tax administration. It is likely that, in the short run, the latter course will continue receiving the strongest emphasis, but the utilization of rate and base adjustments should not be discarded.

In sum, the fiscal system reduces the degree of income inequality in Costa Rica. However, the constraints for the state to continue accomplishing this role, are likely to increase in the future. A stronger dynamics of the market is foreseen in the country. This calls for an effective state regulation, that is, for the strengthening of preventive policies, and for the reinforcement of the progressive elements of the tax system.

7.3 Topics for Further Research

The incidence of the fiscal system has not been much studied in Costa Rica, especially the incidence of taxes. Throughout this work, the absence of supporting or comparative studies was frequently noted. Various areas were felt to require further inquiry.

To start with, more careful research has to be done with respect to the incidence of individual taxes. In particular, it is desirable to devote more attention to the incidence of personal income taxes, the corporation income tax, sales taxes, import duties and selective taxes. Not only is more evidence on this areas needed, but also, more modeling efforts, to test and adapt the available theoretical framework to the circumstances prevailing in the region.

The same assertion can be made with respect to public expenditures. It is of particular interest to investigate more carefully the incidence of public expenditures on

education, health and transfers. While lifetime incidence analysis of the overall fiscal system is quite difficult and controversial, given the evident long term effects of these services, it seems more relevant and perhaps easier to approach them individually within a long time perspective. In general, modeling the incidence of public expenditures is also a task that require further and careful investigation.

The measurement of the excess burden of taxes and excess benefits of public expenditures is another area of necessary inquiry. So is the problem of tax evasion, which, despite the interest it rises in common citizens, has received negligible attention from researchers. In fact, no studies have been undertaken in this area, except for some very preliminary and unpublished approximations for the sales tax, carried out at the Ministry of Finance.

In conclusion, the opportunities to conduct further research in this field are rich and ample. The above are just examples of topics that can be explored, most of which can profit from the availability of the 1988 Income and Expenditure Survey.

It is my hope that the findings presented in this study, stimulate new avenues of investigation that may serve to reaffirm, challenge or compare the above conclusions and strengthen our knowledge on the role that the public sector has played in the development of Costa Rica.

Bibliography

Aaron, Henry and McGuire, Martin. "Public Goods and Income Distribution." Econometrica, Vol. 38, N°6, November, 1970, pp. 907 - 921.

Aaron, Henry and McGuire, Martin. "Reply to Geoffrey Brennan, The Distributional Implications of Public Goods." Econometrica, Vol. 44, N°2, (March, 1976), pp. 401 - 404.

Atkinson, A. B. and Stiglitz, J. E. Lectures on Public Economics. London: McGraw - Hill, 1980.

Baldares, M. La Distribución del Ingreso y los Sueldos en Costa Rica. San José: Editorial Costa Rica, 1985.

Barthold, Thomas A. "How Should we Measure Distribution." National Tax Journal, Vol. XLVI, N° 3, (September), 1993, pp. 291 - 299.

Becker, G. "Investment in Human Capital": A Theoretical Analysis". The Journal of Political Economy Vol 70, (Oct, 1962), pp. 9 - 49

Bergson, A. "A Reformulation of Certain Aspects of Welfare Economics." Quarterly Journal of Economic, Vol. 52, (February, 1938), pp. 314 - 344.

Bird, Richard. "Income Distribution Through the Fiscal System: The Limits of Knowledge." American Economic Association, Vol. 70, N°2, (1980), pp. 77 - 81.

Bjercke, K. "Income and Wealth Distribution. Part I: A Survey of The Literature." Review of Income and Wealth, Vol. 16, (1970), pp. 235 - 252.

Blinder, A.S. Towards an Economic Theory of Income Distribution. Massachusetts: The MIT Press, 1974.

Block, Sheila and Shillington, Richard. "Incidence of Taxes in Ontario in 1991", in Allan M. Maslove (ed.), Taxation and Distribution of Income, Research Studies of the Fair Tax Commission (Toronto: University of Toronto Press, in cooperation with the Fair Tax Commission of The Government of Ontario, 1994). pp. 3 - 39

Boadway, R.W. and Wildasin, D.E. Public Sector Economics. Boston: Little, Brown and Company, 1984.

Break, George. "The Incidence and Economic Effects of Taxation." The Economic of Public Finance, Washington D. C.: Brooking Institution, (1974), pp. 120 - 233.

Brennan, Geoffrey. "The Distributional Implications of Public Goods." Econometrica, Vol. 44, N°2, (March, 1976), pp. 391 - 399.

Brennan, Geoffrey. "Public Goods and Income Distribution: A Rejoinder to the Aaron and McGuire Reply." Econometrica, Vol. 44, N°2, (March, 1976), pp. 405 - 407.

Brittain, John. The payroll Tax for Social Security. Washington D. C.: Brooking Institution, 1972.

Browning, E. "The Burden of Taxation" Journal of Political Economy, Vol. 86, 1978, pp. 649 - 71.

Browning, Edgar and Johnson, William. The Distribution of the Tax Burden. Washington, D. C.: American Enterprise Institute for Public, Policy Research, 1979.

Buchanan, J. "Towards the Analysis of Closed Behavioral Systems." Theory of Public Choice. Edited by J. Buchanan and R.D. Tollison. Michigan University Press, 1972.

Buchanan, J.M. and Tullock, G. The Calculus of Consent. Ann Arbor: University of Michigan, 1972.

Champernowne, D.G. "A comparison of measures of inequality of income distribution." Economic Journal, Vol.84, 1974, pp. 787 - 816.

Champernowne, D.G. "A model of Income Distribution" Economic Journal, Vol. 63, (June, 1953), pp. 318 - 351.

Clarete, Ramon L. "A General Equilibrium Analysis of the Tax Burden and Institutional Distortions in the Philippines." Tax Policy in Developing Countries. Edited by Javad Khalilzadeh - Shirazi and Anwar Shah. Washington, D. C.: The World Bank, 1991.

Comisión Económica para América Latina (CEPAL), "Incidencia Fiscal y Distribución del Ingreso en Costa Rica", 1977. (Mimeo).

Conejo, Carlos; Gutiérrez, Miguel; y Mora, Ronald. "El Impuesto de Ventas en Costa: Opciones de exenciones de gasto y su impacto en la equidad y la recaudación, según el consumo de los hogares." February, 1995. (Mimeo).

Dahlby, B.G. "The Incidence of Government Expenditures and Taxes in Canada: A Survey." Income Distribution and Economic Security in Canada. Francois Vailancourt, Editor. Toronto: University of Toronto Press, 1985.

Dahlby, Bev. "Payroll Taxes". in Business Taxation in Ontario. Edited by Allan M. Maslove. Toronto: University of Toronto Press, 1993. pp. 80 - 170

Davies, David C. "An Empirical Test of Sales Tax Regressivity". Journal of Political Economy, (February, 1959). pp. 72 - 79.)

Davies, James: France St. - Hilaire; and Whalley, John. "Some calculations of Lifetime Tax Incidence" American Economic Review, Vol. 74, (1984), pp.633 - 649.

Davis, J. "On the Incidence of Income Redistribution." Public Choice, (Spring, 1971). pp. 73 - 74.

Dirección General de Estadísticas y Censos. "Encuesta de Ingresos y Gastos de los Hogares: Conceptos y Definiciones". San José, 1977. (Mimeo).

Dirección General de Estadísticas y Censos. Encuesta de Ingresos y Gastos de los Hogares. San José: Ministerio de Economía, Setiembre 1986.

Dosser, D. "Tax Incidence and Growth." Economic Journal, Vol. 73, Sept., 1961. pp. 547 - 553.

Downs, Anthony. An Economic Theory of Democracy. New York: Harper and Row. 1957.

Fei, John C.H.; Ranis, Gustav; and W.Y. Kuo, Shirley. Growth with Equity: The Case of Taiwan. Oxford: University Press, 1979.

Feldstein, M. "Incidence of a Capital Income Tax in a Growing Economy with Variable Savings Rates". Review of Economic Studies, N°41, (1974), pp. 505 - 513.

Fullerton, D. and Rogers, D. L. Who Bears the Lifetime Tax Burden?. Washington: The Brookings Institution, 1993.

Gibrat, R. "On Economic Inequalities." International Economic Papers, Vol. 7, 1957, pp. 53 - 70.

Gillespie, W.I. The Incidence of Taxes and Public Expenditures in the Canadian Economy. Study N°2 of the Royal Commission on Taxation. Ottawa: Queen's Printer, 1966.

The Redistribution of Income in Canada. Ottawa:Gage Publishing Limited, 1980.

_____. "On Current Developments in Income Redistribution Theory" (Mimeographed). 1972

Gillespie, W. Irwin and Labelle, J Brian. "A Pro - Poor or Pro - Rich Redistribution of Income?." National Tax Journal, Vol. XXXL, pp. 185 - 189.

Harberger, Arnold C. "The incidence of the Corporation Income Tax." Journal of Political Economy, Vol. 70, (June, 1962), pp. 215 - 240.

Hochman, H.M. and Rodgers, J.D. "Pareto Optimal Redistribution." American Economic Review, (September, 1969), pp. 542 - 557.

Hubbard, R.G. "On the Use of Distribution Tables in the Tax Policy Process." National Tax Journal, Vol. XLVI, N°4, (December, 1993). Pp. 301 - 309

IICE. Impacto Redistributivo del Gasto Público en Programas Sociales. San José: Universidad de Costa Rica, N°152, 1986.

IICE. Los Programas Estatales de Carácter Social y su Impacto en la Distribución del Ingreso Familiar: Informe Final. San José: Universidad de Costa Rica, 1985.

Inter American Development Bank. Socio - Economic Report of Costa Rica. Washington: The IDB, 1992.

Inter American Development Bank. Socioeconomic Report: Costa Rica. Washington: October 1992.

International Monetary Fund. Costa Rica: El Sistema Tributario. Washington: IMF, April 1990.

Jaramillo, Juan. Los Problemas de la Salud en Costa Rica. San José: Litografía Ambor, 1984.

Johnson, J.A. The Incidence of Government Revenue and Expenditures. A study for the Ontario Committee on Taxation. Toronto: Queen's Printer, 1968.

Kahlilzadeh - Shirazi, Javad and Shah, Anwar. Tax Policy in Developing Countries. Washington, D. C.: The World Bank, 1991.

Kaldor, N. "Alternative Theories of Distribution." Review of Economic Studies, Vol. 23, 1956, pp. 83 - 100.

Kotlikoff, L. and Summers, L. "Tax Incidence." Handbook of Public Economics Edited by Alan J. Auerbach and Martin Feldstein. Amsterdam: Elsevier Science Publishers B. V., Vol. II, 1987. pp.1043 - 1092

Krzyzaniak, M.,ed. Effects of the Corporation Income Tax, Detroit: Johns Hopkins, 1966.

_____. "Long - Run Burden of a General Tax on Profits in a Neo - Classical World", Public Finance, N° 22, (1967). pp. 473 - 91.

Krzyzaniak, Marian and Musgrave, Richard. The Shifting of the Corporation Income Tax: An Empirical Study of its Short - Run Effect Upon the Rate of Return. John Hopkins Press, 1963.

Lydall, H.F. "Theories of the Distribution of Earnings". The Personal Distribution of Income and Wealth. Edited by A.B. Atkinson. London: Allen and Unwin, 1976.

Lydall, Harold. The Structure of Earnings. Oxford: Clarendon Press, 1968.

Maital, Shlomo. "Public Goods and Income Distribution: Some Further Results." Econometrica, Vol. 41, N°3, (May, 1973), pp. 561 - 568.

Mckenzie, Kenneth J. and Mintz, Jack M. "The effects on the Cost of Capital." Canada - US Tax Comparisons. Edited by John B. Shoven and John Whalley. Chicago: The University of Chicago Press, 1992.

McLure, Charles Jr. "Tax Incidence, Macroeconomic Policy, and Absolute Prices." Quarterly Journal of Economics, Vol. 84, (May, 1970), pp. 254 - 277

_____. "The Theory of Tax Incidence With Imperfect Factor Mobility". Finanzarchiv Vol. 30, (1971), pp.27 - 48,

_____. "General Equilibrium Incidence Analysis" Journal of Public Economics Vol 4, (1975), pp. 125 - 161,

_____. "Fiscal Policy and Equity in Developing Countries". Policy Reform and Equity. Edited by Elliot Berg. San Francisco: The international Centre for Economic Growth, 1988.

McLure, Charles and Thirsk, Wayne R, "A Simplified Exposition of the Harberger Model I: Tax Incidence", National Tax Journal , Vol. XXVIII, No.1, (March 1975). pp. 1 - 27.

_____. "A Simplified Exposition of the Harberger Model II: Expenditure Incidence" National Tax Journal, Vol. XXVIII, No.4 (June 1975) pp. 194 - 207.

Meng, Ronald and Gillespie, W. I. "The Regressivity of Property Taxes in Canada: Another Look." Canadian Tax Journal, Vol. 34, N°6, pp.1417 - 30.

Meza Lago, Carmelo. "Análisis Económico de los Sistemas de Pensiones en Costa Rica y Recomendaciones para su Reforma", 1988. (Mimeo).

Michaelson, S. "The Economics of Real Income Distribution". Review of Radical Political Economics, Spring Issue, 1970. 75 - 86

Mieszkowski, Peter M. "Tax Incidence Theory: The Effect of Taxes on the Distribution of Income" Journal of Economic Literature, Vol. 7, (December 1969). pp.1103 - 1024.

_____. "On the Theory of tax Incidence" Journal of Political Economy, Vol. 75, (June 1977). pp.250 - 262

_____. "The Property Tax: An Excise or Property Tax?." Journal of Public Economics, Vol. 1, (April 1972), pp.73 - 96.

Mill, J.S. "Utilitarianism." The Great Books of the Western World, Encyclopedia Britannica, Vol. 43, 1988.

Mincer, Jacob. "The Distribution of Labor Income: a Survey With Special Reference to the Human Capital Approach". Journal of Economic Literature, Vol. 8, (1970), pp. 1 - 26.

Ministerio de Hacienda (Comisión para el Análisis del Deuda Interna). "Deuda del Gobierno Central de Costa Rica: Problemas y Perspectivas". San José: noviembre 1996. (mimeo).

Ministry of Information, "Presidential Address at the Signing Ceremony of the Convenio IMAS - UNA, Brazos - Mente". San José: Presidential House, June 1996 (mimeo).

Ministry of Information, "Address by the President of the Republic at the Closing Ceremony of the Congress of the Chamber of Industries". San José: Presidential House, mimeo, June 1996.(mineo)

Mohan, Rakesh. An Anatomy of the Distribution of Urban Income. A Tale of Two Cities in Colombia. Washington: The World Bank Staff Working Papers, N°650, 1984.

Mueller, D.C. Public Choice. New York: Cambridge University Press, 1979.

Murray Haig, R. The federal Income Tax. New York: Columbia University Press, 1921.

Musgrave, R.A.; Case, K.E.; and Leonard, H. "The Distribution of Fiscal Burdens and Benefits". Public Finance Quarterly, Vol. 2. No.3 (1974), pp. 259 - 311.

Musgrave, R.A. "On incidence", Journal of Political Economy. Vol. 61 (August 1953), pp. 306 - 323

Musgrave, Richard A. and Musgrave, Peggy B. Public Finance In Theory and Practice. New York: McGraw Hill Book Company, 1984.

Musgrave, R. A. Teoría de la Hacienda Pública. Madrid: Aguilar S.A., 1969.

Musking, Selma J. "Health as an Investment". The Journal of Political Economy, Vol. LXX. Supplement: No 5, Part 2, (October 1962), pp. 129 - 157.

Naciones Unidas, PNUD. Informe Sobre el Desarrollo Humano. Madrid: Mundi - Prensa Libros, S.A., 1996.

Olsen, E. "A Normative Theory of Transfers." Public Choice, (Spring, 1969), pp.39 - 58.

Pechman, Joseph. Who Paid the Taxes?. Washington D. C.: The Brooking Institution, 1985.

Piggott, John and Whalley, John. Applied General Equilibrium Analysis: An Application to UK Tax Policy. Cambridge: Cambridge University Press, 1985.

Pigou, A. The Economics of Welfare. Fourth Edition. London: Macmillan, 1924.

Polinski, A.M. "A Note on the Measurement of Incidence." Public Finance Quarterly, Vol. 1, N°2, (April, 1973), pp. 219 - 231.

Prest, A.R. "The Budget and Interpersonal Distribution" Public Finance, Vol. 23 (1968), pp. 81 - 95.

Prest, A.R.. "Statistical Calculations of Tax Burdens." Economica, August. (1955), pp. 234 - 245.

Reynolds, M and Smolensky, E. Public Expenditures, Taxes and the Distribution of Income. London, New York: Academic Press Inc, 1977.

Rodgers, James D. "Explaining Income Redistribution." Redistribution through Public Choice. Edited by Harold Hochman and George Peterson. New York: Columbia University Press, 1974.

Rodríguez, A. Estudio del Efecto Redistributivo del Subsidio Generado en los Programas Públicos de Financiamiento y Dotación de Vivienda en 1982. IICE, N°98. San José: Universidad de Costa Rica, 1986.

Rodríguez, Adrián. Costa Rica: Los Programas Estatales de Salud y su Impacto en la Distribución del Ingreso Familiar. IICE. San José: Universidad de Costa Rica, 1984.

Rodríguez, Adrián. El Gasto Público en Programas de Seguridad Social: Estudio de su Efecto Distributivo en 1982. Documentos de Trabajo, N°102, IICE. Universidad de Costa Rica, diciembre 1986.

Rolph, E. "A proposed revision of excise - tax theory". Journal of Political Economy, (Vol. 60, April 1952), pp. 102 - 117,

_____ "A theory of excise subsidies", American Economic Review (Vol. 42, September 1952), pp. 515 - 527,

_____ The Theory of Fiscal Economics (University of California Press, 1954), pp. 123 - 171;

Ruggeri, G.C.; Van Wart, D.; and Howard, R. "The Redistributive Impact of Taxes in Canada." Canadian Tax Journal, Vol. 42, N°2. (1994), pp. 417 - 51.

_____ The Government as Robin Hood: Exploring the Myth. Kingston: The School of Policy Studies, 1996.

Sabourin, David; Gribble, Stephen; and Wolfson, Michael. "Ontario's Corporate Income Tax: An Analysis of Effective Tax Rates". Business Taxation in Ontario. Allan Maslove, Editor. Toronto: University of Toronto Press, 1993, pp. 43 - 79

Sahota, G.S. "Theories of Personal Income Distribution: a Survey." Journal of Economic Literature, Vol. 16, 1978, pp. 1 - 55.

Samuelson, P.A. Foundations of Economic Analysis. Cambridge: Harvard University Press, 1947.

Sauma, P. Impacto Redistributivo del Subsidio Generado en los Programas Estatales de Agua Potable y Alcantarillado en 1982. IICE, N°99. San José: Universidad de Costa Rica, 1986.

Sauma, Pablo and Taylor, Marvin. Efecto Redistributivo del Subsidio a la Educación Preescolar, Primaria y Media en Costa Rica. Tesis de Grado, Universidad de Costa Rica. 1984.

Sawyers, L. and Watchel, H. "Theory of the State, Government Tax and Purchasing and Income Distribution", Review of Income and Wealth, (1974), 111 - 125.

Schultz, T. "Reflections on Investment in Man" The Journal of Political Economy, Vol. 70, Oct., 1962, pp. 1 - 79.

Sen, A.K. Collective Choice and Social Welfare. San Francisco: Holden - Day, 1970.

Shoup, Carl. Public Finance. Chicago, 1969.

Shoven, J. and Whalley, J. "Applied General Equilibrium models of Taxation and International Trade: An Introduction and Survey." Journal of Economic Literature, Vol. 22, (1984), pp. 1007 - 1051.

Simons, Henry C. Personal Income Taxation. Chicago: University of Chicago Press, 1938.

Stigler, G.J. "Director's Law of Public Income Redistribution." Journal of Law and Economics, April, 1970, pp. 1 - 11.

Taylor, Marvin. La Estructura de Protección Efectiva al Sector Industrial Costarricense. San José: Disigraf, 1984.

Taylor, Marvin. "Poverty and Public Expenditure on Social Programs: The Case of Costa Rica." Unpublished M. A. Thesis, Carleton University, Ottawa Ontario, 1986.

The World Bank. "Social spending in Latin America: The Story of the 1980's". December, 1990, Appendix II. (Mimeographed).

Timbergen, Jan. Income Distribution: Analysis and Policies. Amsterdam: North - Holland, 1975.

Torres, E. and Pinto, J. Los Problemas de la Formación del Estado Nacional en Centroamérica. ICAP. San José, 1983.

Trejos, J. D. y Elizalde, M. L. Costa Rica: La Distribución del Ingreso y el Acceso a los Programas de Carácter Social. IICE, N°90. San José: Universidad de Costa Rica, 1986.

Trejos, Juan Diego y Elizalde, María L. Costa Rica: La Distribución del Ingreso y el Acceso a los Programas de Carácter Social. IICE. San José: Universidad de Costa Rica, 1985.

Trejos, Juan Diego. La Distribución del Ingreso de las Familias Costarricenses: Algunas Características en 1977. IICE. San José: Universidad de Costa Rica, 1983.

Tullock, G. "The Charity of the Uncharitable" Western Economic Journal, December, 1971, pp. 379 - 392.

Vermaeten, Frank; Gillespie, W.I.; and Vermaeten, Arndt. "Tax Incidence in Canada." Canadian Tax Journal, Vol. 42, N°3, 1994, pp. 348 - 416.

_____. "Who Paid the Taxes in Canada 1951 - 1988?", Canadian Public Policy, Vol. XXI, No.3. (September, 1995), pp. 317 - 343

Whalley, John and Shah, Anwar, "The Redistributive Impact of Taxation in Developing Countries". Tax Policy in Developing Countries. Edited by Javad Khalilzadeh - Shirazi and Anwar Shah. Washington, D.C.: The World Bank, 1991.

Whalley, John. "Regression or Progression: The Taxing Question of Incidence Analysis." Canadian Journal of Economics, Vol. 71, (Sept., 1981), pp. 677 - 691.

World Bank, Poverty: World Development Report 1990. New York: Oxford University Press, 1990.

Zeckhauser, R. "Optimal Mechanisms for Income Transfers." American Economic Review, (June, 1971), pp. 324 - 334.

APPENDIX I
TABLES AND FIGURES OF CHAPTER 1

Table L1
Costa Rica: Recent Selected Macroeconomic Indicators
(Percents and US Dollars)

Concept	1991	1993	1995
<u>Origin of GDP (Percents)</u>			
Agriculture	17.3	16.0	18.0
Manufacturing and mining	19.9	19.3	18.6
Housing and construction	6.1	5.7	5.1
Central government	13.4	13.5	13.9
Other services	43.2	45.4	44.4
<u>Ratios to GDP (Percents)</u>			
Exports of goods and nonfactor services	38.3	39.1	40.3
Imports of goods and nonfactor services	-39.1	-46.4	-42.2
Balance of Payments Current account (excluding official transfers)	-1.3	-8.3	-1.5
Central government revenues	14.8	15.1	15.4
Central government expenditures	17.9	17.1	19.7
Nonfinancial public sector savings	3.3	6.3	3.0
Overall public sector surplus or deficit (-)	-2.0	-0.9	-3.8
External public debt (end of year)	59.1	45.1	32.8
Gross national savings	23.2	21.6	23.3
Gross domestic investment	25.0	29.9	24.8
<u>Annual changes in selected indicators (Percents)</u>			
Real GDP	2.3	6.3	2.5
GDP deflator	29.1	11.0	23.9
Consumer prices (annual averages)	28.7	9.8	23.2
Merchandise exports (in U.S. dollars)	10.7	8.4	18.5
Merchandise imports (in U.S. dollars)	-5.5	18.9	8.1
<u>Balance of payments (millions US dollars)</u>			
Merchandise exports	1,490	1,874	2,480
Merchandise imports	1,877	-2,919	-3,286
Factor services (net)	-190	-222	-177
Other services and transfers (net)	495	654	839
Balance on current account	-82	-613	-143
Official capital	63	-20	-107
Private capital, including errors and omissions	180	618	494
Overall balance	168	-14	244
Debt rescheduling	294	117	29
Changes in reserves (increase -)	-350	-32	-229

Source: Central Bank of Costa Rica, Ministry of Finance, Ministry of Economy,
Ministry of Labor, World Bank

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APPENDIX III

TABLES AND FIGURES OF CHAPTER 3

Table III.1
Basic Income: Country Shares of Persons and Income by Deciles, 1988
 (percents)

Deciles	(A)Share of Income	(B)Share of Persons	Share Relation (A/B)	Average N° of Persons
First	2.2	11.8	0.2	5.4
Second	4.1	11.9	0.3	5.5
Third	5.4	11.6	0.5	5.3
Fourth	6.4	10.9	0.6	5.0
Fifth	7.1	10.0	0.7	4.6
Sixth	8.9	10.4	0.9	4.8
Seventh	10.2	10.0	1.0	4.4
Eighth	12.6	9.6	1.3	4.1
Ninth	16.0	8.3	1.9	3.8
Tenth	27.0	7.0	3.9	3.8

Source: DGSC. Income and Expenditure Survey

Table III.2
Basic Income: Urban Shares of Persons and Income by Deciles, 1988
 (Percent)

Deciles	Share of Income	Share of Persons	Share Relation	Average N° of Persons
First	3.0	12.3	0.2	5.4
Second	4.6	12.0	0.4	5.2
Third	5.5	11.1	0.5	4.9
Fourth	6.3	10.4	0.6	4.5
Fifth	7.7	10.5	0.7	4.6
Sixth	9.4	10.5	0.9	4.5
Seventh	10.7	9.5	1.1	4.2
Eighth	12.6	8.9	1.4	3.8
Ninth	15.2	8.0	1.9	3.5
Tenth	25.0	6.7	3.7	2.9

Source: DGSC. Income and Expenditure Survey

Table III.3
Basic Income: Rural Share of Income and Persons by Deciles, 1988
 (Percent)

Deciles	Share of Income (A)	Share of Persons (B)	Share Relation A/B)	Average of N° of Persons
First	2.4	11.9	0.2	5.8
Second	3.9	10.8	0.4	5.2
Third	5.4	11.1	0.5	5.4
Fourth	6.7	10.8	0.6	5.2
Fifth	7.8	10.2	0.8	4.9
Sixth	9.3	10.5	0.9	5.0
Seventh	10.2	9.8	1.0	4.7
Eighth	12.2	9.6	1.3	4.6
Ninth	14.7	8.3	1.8	4.0
Tenth	27.3	7.0	3.9	3.4

Source: DGSC. Income and Expenditure Survey.

Table III.4
Basic Income and Household Shares by Region, 1988

Region	(A) Income Share	(B) Household Share	A/B
Country	1.00	1.00	1.00
Urban	0.63	0.51	1.24
Rural	0.37	0.49	0.76

Source: DGSC. Income and Expenditure Survey

Table III.5
Basic Income and Persons Shares by Region, 1988

Region	(A) Income Share	(B) Persons Share	A/B
Country	1.00	1.00	1.00
Urban	0.63	0.48	1.31
Rural	0.37	0.52	0.71

Source: DGSC. Income and Expenditure Survey

Table III.6
Basic Income: Country Average Number of Income Recipients, Wage Earners
and Household Members, by Decile , 1988

Deciles	(A) Average number of Income Recipients	(B) Average number of Wage Earners	(C) Average number of Household Members	B/A	C/A
First	1.8	1.2	5.4	0.7	3.0
Second	1.4	0.7	5.5	0.5	3.9
Third	1.6	1.1	5.3	0.7	3.3
Fourth	1.7	1.1	5.0	0.6	2.9
Fifth	1.8	1.3	4.6	0.7	2.5
Sixth	1.9	1.2	4.8	0.6	2.5
Seventh	2.1	1.4	4.4	0.7	2.1
Eighth	2.0	1.4	4.1	0.7	2.1
Nineth	2.0	1.4	3.8	0.7	1.9
Tenth	1.8	1.0	3.0	0.6	1.7
Average	1.8	1.2	4.6	0.7	2.6

Source: DGSC. Income and Expenditure Survey

Table III.7
Basic Income: Urban Average Number of Income Recipients, Wage Earners
and Household Members, by Decile, 1988

Deciles	(A) Average Number of Income Recipients	(B) Average Number of Wage Earners	(C) Average Number of Household Members	B/A	C/A
First	1.4	1.0	5.4	0.7	3.9
Second	1.5	1.1	5.2	0.7	3.5
Third	1.7	1.1	4.9	0.6	2.9
Fourth	1.7	1.3	4.5	0.8	2.6
Fifth	1.9	1.4	4.6	0.7	2.4
Sixth	2.1	1.4	4.5	0.7	2.1
Seventh	2.1	1.5	4.2	0.7	2.0
Eighth	2.1	1.4	3.8	0.7	1.8
Nineth	1.8	1.3	3.5	0.7	1.9
Tenth	1.7	1.0	2.9	0.6	1.7
Average	1.8	1.2	4.4	0.7	2.5

Source: DGSC. Income and Expenditure Survey

Table III.8
Basic Income: Rural Average Number of Income Recipients, Wage Earners
and Household Members, by Decile, 1988

Deciles	(A) Average number of Income Recipients	(B) Average Number of Wage Earners	(C) Average Number of Household Members	B/A	C/A
First	1.4	0.6	5.8	0.4	4.1
Second	1.6	0.9	5.2	0.6	3.3
Third	1.7	1.1	5.4	0.6	3.2
Fourth	1.8	1.2	5.2	0.7	2.9
Fifth	1.8	1.2	4.9	0.7	2.7
Sixth	2.0	1.4	5.0	0.7	2.5
Seventh	2.0	1.4	4.7	0.7	2.4
Eighth	2.2	1.5	4.6	0.7	2.1
Nineth	2.0	1.4	4.0	0.7	2.0
Tenth	1.9	1.2	3.4	0.6	1.8
Average	1.8	1.2	4.8	0.7	2.7

Source: DGSC. Income and Expenditure Survey

Table III.9
Basic Income: Country Monthly Family Distribution
by Deciles and Factor Components, 1988
 (percent)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Transfers	Other Income
First	2.2	1.8	3.2	1.1	3.5	1.3
Second	4.1	4.6	4.0	0.6	3.4	1.5
Third	5.4	5.9	5.9	1.5	3.9	2.9
Fourth	6.4	7.5	5.7	1.1	3.7	2.8
Fifth	7.1	8.0	6.8	2.2	4.8	3.8
Sixth	8.9	10.0	7.8	4.8	6.6	7.5
Seventh	10.2	11.1	9.3	4.9	10.2	3.8
Eighth	12.6	13.5	11.3	8.9	13.8	6.2
Ninth	16.0	17.6	13.1	14.0	14.5	14.0
Tenth	27.0	19.8	32.9	60.9	35.9	56.3
Gini Coefficient	35.5	30.5	36.9	68.8	44.0	61.6

Source: DGSC. Income and Expenditure Survey

Table No. III.10
Basic Income: Urban Monthly Family Distribution
by Deciles and Factor Components, 1988
 (percent)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Transfers	Other Income
First	3.0	3.3	2.2	0.5	4.4	0.9
Second	4.6	4.8	5.4	1.5	3.6	2.7
Third	5.5	6.2	5.3	1.7	4.0	2.3
Fourth	6.3	7.6	4.1	3.9	4.2	5.9
Fifth	7.7	8.4	7.2	3.5	7.3	3.3
Sixth	9.4	10.4	8.1	3.0	10.2	4.2
Seventh	10.7	11.7	9.0	7.1	10.0	8.5
Eighth	12.6	13.8	10.1	4.3	13.2	12.2
Ninth	15.2	14.6	14.4	23.7	17.6	12.4
Tenth	25.0	19.3	34.2	50.9	25.6	48.6
Gini Coefficient	32.3	26.6	39.7	63.8	35.7	56.3

Source: DGSC. Income and Expenditure Survey

Table III.11
Basic Income: Rural Monthly Family Distribution
by Deciles and Factor Components, 1988
 (percent)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Transfers	Other Income
First	2.4	1.9	3.1	2.1	5.1	1.2
Second	3.9	3.9	4.2	1.6	5.3	1.4
Third	5.4	6.3	5.2	1.1	3.1	2.1
Fourth	6.7	7.3	7.0	1.3	5.5	3.2
Fifth	7.7	9.2	6.0	1.0	7.0	3.2
Sixth	9.3	11.6	7.2	3.0	3.5	4.3
Seventh	10.2	12.0	8.3	5.3	7.5	6.1
Eighth	12.2	12.8	11.8	6.8	14.7	6.2
Ninth	14.7	14.9	15.6	12.4	15.1	6.8
Tenth	27.3	20.2	31.7	65.4	33.2	65.6
Gini Coefficient	35.0	29.1	37.6	69.6	39.6	64.4

Source: DGSC. Income and Expenditure Survey

Table III.12
Broad Income: Country Shares of Persons and Income by Deciles, 1988

Deciles	(A)Share of Income	(B)Share of Persons	Share Relation (A/B)	Average N* of Persons
First	0.8	8.7	0.1	4.0
Second	3.4	11.9	0.3	5.5
Third	4.9	11.5	0.4	5.4
Fourth	6.3	11.3	0.6	5.2
Fifth	7.6	11.0	0.7	5.0
Sixth	8.4	10.1	0.8	4.6
Seventh	10.6	10.4	1.1	4.8
Eighth	13.5	9.9	1.4	4.5
Nineth	16.0	8.2	1.9	3.8
Tenth	28.5	7.0	4.1	3.2

Source: DGSC. Income and Expenditure Survey

Table III.13
Broad income: Urban Shares of Persons and Income by Deciles, 1988

Deciles	(A)Share of Income	(B)Share of Persons	Share Relation (A/B)	Average N* of Persons
First	0.8	8.3	0.1	3.6
Second	3.9	12.1	0.3	5.3
Third	5.2	11.6	0.4	5.1
Fourth	6.2	11.0	0.6	4.8
Fifth	7.5	10.8	0.7	4.7
Sixth	9.1	10.8	0.8	4.7
Seventh	11.7	10.8	1.1	4.7
Eighth	12.5	9.0	1.4	3.9
Nineth	16.4	8.6	1.9	3.7
Tenth	26.8	7.0	3.8	3.0

Source: DGSC. Income and Expenditure Survey

Table III.14
Broad Income: Rural Share of Income and Persons by Deciles, 1988

Deciles	(A)Share of Income	(B)Share of Persons	Share Relation (A/B)	Average N* of Persons
First	1.0	9.0	0.1	4.3
Second	3.6	11.8	0.3	5.7
Third	5.1	11.3	0.4	5.4
Fourth	6.3	10.7	0.6	5.2
Fifth	8.1	11.0	0.7	5.3
Sixth	9.2	10.4	0.9	5.0
Seventh	10.8	10.2	1.1	4.9
Eighth	12.7	9.9	1.3	4.8
Nineth	16.0	9.0	1.8	4.4
Tenth	27.0	6.8	4.0	3.3

Source: DGSC. Income and Expenditure Survey.

Table III.15
Broad Income and Household Shares by Region, 1988

Region	(A)Income Share	(B) Household Share	A/B
Country	1.00	1.00	1.00
Urban	0.62	0.51	1.22
Rural	0.38	0.49	0.78

Source: DGSC. Income and Expenditure Survey

Table III.16
Broad Income and Persons Shares by Region, 1988

Region	(A)Income Share	(B) Persons Share	A/B
Country	1.00	1.00	1.00
Urban	0.62	0.48	1.29
Rural	0.38	0.52	0.73

Source: DGSC. Income and Expenditure Survey

Table III.17
Broad Income: Country Average Number of Income Recipients, Wage Earners
and Household Members, by Decile , 1988

Deciles	(A) Average number of Income Recipients	(B) Average number of Wage Earners	(C) Average number of Household Members	B/A	C/A
First	1.3	0.3	4.0	0.2	3.0
Second	1.6	0.9	5.5	0.6	3.4
Third	1.7	1.1	5.3	0.6	3.1
Fourth	1.7	1.2	5.2	0.7	3.1
Fifth	1.9	1.3	5.0	0.7	2.6
Sixth	1.9	1.4	4.6	0.7	2.4
Seventh	2.1	1.5	4.8	0.7	2.3
Eighth	2.1	1.5	4.5	0.7	2.1
Ninth	2.0	1.5	3.8	0.7	1.9
Tenth	1.9	1.2	3.2	0.6	1.7
Average	1.8	1.2	4.6	0.7	2.6

Source: DGSC. Income and Expenditure Survey

Table III.18
Broad Income: Urban Average Number of Income Recipients, Wage Earners
and Household Members, by Decile, 1988

Deciles	(A) Average Number of Income Recipients	(B) Average Number of Wage Earners	(C) Average Number of Household Members	B/A	C/A
First	1.3	0.3	3.6	0.2	2.8
Second	1.5	1.0	5.3	0.7	3.5
Third	1.7	1.1	5.1	0.6	3.0
Fourth	1.8	1.2	4.8	0.7	2.7
Fifth	1.9	1.4	4.7	0.7	2.5
Sixth	1.9	1.3	4.7	0.7	2.5
Seventh	2.1	1.5	4.7	0.7	2.2
Eighth	2.1	1.7	3.9	0.8	1.9
Ninth	2.0	1.5	3.7	0.7	1.8
Tenth	1.8	1.2	3.0	0.7	1.7
Average	1.8	1.2	4.4	0.7	2.4

Source: DGSC. Income and Expenditure Survey

Table III.19
Broad Income: Rural Average Number of Income Recipients, Wage Earners
and Household Members, by Decile, 1988

Deciles	(A) Average number of Income Recipients	(B) Average Number of Wage Earners	(C) Average Number of Household Members	B/A	C/A
First	1.3	0.3	4.3	0.2	3.3
Second	1.6	0.9	5.7	0.6	3.6
Third	1.7	1.1	5.4	0.6	3.2
Fourth	1.7	1.1	5.2	0.6	3.1
Fifth	1.8	1.3	5.3	0.7	2.9
Sixth	2.0	1.4	5.0	0.7	2.5
Seventh	2.0	1.5	4.9	0.8	2.5
Eighth	2.1	1.6	4.8	0.8	2.3
Ninth	2.1	1.5	4.4	0.7	2.1
Tenth	1.9	1.2	3.3	0.6	1.7
Average	1.8	1.2	4.8	0.7	2.7

Source: DGSC. Income and Expenditure Survey

Table III.20
Broad Income: Country Monthly Family Distribution
by Deciles and Factor Components, 1988
 (percent)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Other Income
First	0.8	0.6	1.2	1.6	1.2
Second	3.4	3.3	4.0	2.1	2.0
Third	4.9	5.3	5.0	1.2	2.4
Fourth	6.3	6.8	6.1	2.1	3.0
Fifth	7.6	8.7	6.1	2.1	3.4
Sixth	8.4	9.4	6.4	4.9	5.8
Seventh	10.6	11.4	10.0	5.2	5.9
Eighth	13.5	14.0	13.7	9.8	6.3
Ninth	16.0	17.8	11.6	14.7	13.0
Tenth	28.5	22.7	36.0	56.1	56.3
Gini Coefficient	39.0	36.0	43.0	64.0	61.0

Source: DGSC. Income and Expenditure Survey

Table III.21
Broad Income: Urban Monthly Family Distribution
by Deciles and Factor Components, 1988
 (percent)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Other Income
First	0.8	0.7	0.8	2.3	0.8
Second	3.9	4.4	3.1	1.5	2.2
Third	5.2	5.3	5.8	2.5	2.9
Fourth	6.2	6.9	5.1	2.5	4.2
Fifth	7.5	8.4	5.0	5.5	5.9
Sixth	9.1	9.6	9.1	4.3	3.8
Seventh	11.7	12.4	11.4	5.7	5.3
Eighth	12.5	13.8	9.0	10.0	13.0
Ninth	16.4	17.6	13.7	15.1	11.4
Tenth	26.8	21.1	37.0	50.6	50.5
Gini Coefficient	38.0	34.0	45.0	58.0	57.0

Source: DGSC. Income and Expenditure Survey

Table III.22
Broad Income: Rural Monthly Family Distribution
by Deciles and Factor Components, 1988
 (percent)

Deciles	Total Income	Wage Income	Self Employment Income	Property Income	Other Income
First	1.0	0.7	1.6	1.9	1.3
Second	3.6	3.5	4.3	2.0	1.9
Third	5.1	5.6	4.9	1.6	2.1
Fourth	6.4	6.7	6.6	2.3	2.7
Fifth	8.1	9.5	6.6	2.0	3.3
Sixth	9.2	11.0	6.8	1.8	4.3
Seventh	10.8	12.8	7.9	2.8	5.5
Eighth	12.7	13.9	11.3	7.6	7.4
Ninth	16.0	16.1	17.1	16.3	6.6
Tenth	27.1	20.2	32.9	61.7	64.9
Gini Coefficient	37.0	33.0	41.0	67.0	64.0

Source: DGSC. Income and Expenditure Survey

APPENDIX IV
TABLES AND FIGURES OF CHAPTER 4

Table IV.1
Costa Rica: Tax Revenues by Category, 1988
(Millions of Colones and Percents)

Tax Revenue Category	Amount	Percent Share
Total	<u>77,408</u>	<u>100.0</u>
Social Security Contributions	24,368	31.5
General sales Tax	13,562	17.5
Selective Excise Taxes	<u>12,605</u>	<u>16.3</u>
Selective Taxes	9,550	12.3
Stamps	1,001	1.3
Other Specific Taxes	2,054	2.7
Import Duties	9,799	12.7
Income Tax	<u>8,306</u>	<u>10.7</u>
Corporation Income Tax	5,824	7.5
Personal Income Taxes	<u>2,482</u>	<u>3.1</u>
Interest and Dividends Tax	1,478	1.9
Self-employment Income Tax	173	0.2
Labor Income Tax	561	0.7
Lottery Prizes Tax	270	0.3
Export Taxes	<u>5,790</u>	<u>7.5</u>
Coffee	4,208	5.4
Bananas	649	0.8
Others	933	1.2
Vehicle Taxes	1,676	2.2
Property Taxes	1,302	1.7

Source: Author's estimates with data of the Ministry of Finance and the Comptrollership General of the Republic, Costa Rica

Table IV.2
Costa Rica, Total Country: Monthly Distribution of Taxes by Category and Deciles, 1988
(Thousands of Colones)

Category	Deciles									
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Social Security Contributions	8,582.0	50,183.1	89,751.1	117,992.5	144,271.5	192,823.2	230,599.1	289,504.1	358,878.4	548,081.7
General Sales Tax	30,424.8	38,986.0	51,849.3	67,211.7	77,749.3	90,985.2	109,118.5	143,433.0	174,448.3	345,960.6
Excise Taxes	32,535.6	38,618.9	49,880.0	64,983.3	73,796.4	85,711.7	102,061.2	132,454.2	158,921.0	311,454.3
Import Duties	35,639.4	35,815.4	42,881.8	56,627.7	61,095.2	69,418.5	80,903.0	100,884.8	115,725.2	217,592.4
Corporation Income Tax	3,803.8	16,846.3	24,524.0	31,363.7	37,540.5	41,071.0	52,372.7	66,668.0	77,894.2	133,255.9
Export Taxes	2,803.0	16,076.4	25,478.7	33,015.3	41,792.7	45,545.5	55,025.8	67,428.9	85,704.9	109,628.7
Personal Income Taxes	4,205.3	3,485.3	2,743.8	3,415.0	4,373.8	8,625.7	7,626.7	15,622.7	27,864.7	128,873.4
Vehicle Taxes	6,467.0	4,976.5	4,306.6	8,665.3	8,612.9	9,888.7	13,305.9	17,494.1	23,225.7	42,723.3
Property Taxes	1,737.1	2,317.1	1,309.4	2,388.7	2,306.8	5,358.2	5,642.6	10,611.4	15,933.9	60,894.8
All Taxes	126,198.1	207,305.1	292,724.6	385,663.4	451,539.1	549,427.6	656,655.5	844,101.1	1,038,596.3	1,898,465.1

Source: Author's Estimates

Table IV.3
Costa Rica: Monthly Distribution
of Taxes by Region and Deciles, 1988
(Thousands of Colones)

Deciles	Total Country	Urban	Rural
First	126,198.1	84,506.6	57,985.3
Second	207,305.1	154,038.1	72,336.6
Third	292,724.6	193,642.3	104,220.4
Fourth	385,663.4	229,903.5	153,713.8
Fifth	451,539.1	295,050.6	184,826.5
Sixth	549,427.6	364,198.8	214,574.8
Seventh	656,655.5	434,960.7	246,061.6
Eighth	844,101.1	505,553.4	300,376.1
Ninth	1,038,596.3	617,686.7	395,060.8
Tenth	1,898,465.1	1,077,849.0	764,129.8
Total	6,450,675.9	3,957,389.7	2,493,286.2

Note: Urban and Rural do not add to total by deciles, for the latter are defined separately for each region

Source: Author's estimates

IV.4
Costa Rica: Monthly Distribution
of Taxes by Region and Deciles, 1988
(Percents)

Deciles	Total Country	Urban	Rural
First	2.0	2.1	2.3
Second	3.2	3.9	2.9
Third	4.5	4.9	4.2
Fourth	6.0	5.8	6.2
Fifth	7.0	7.5	7.4
Sixth	8.5	9.2	8.6
Seventh	10.2	11.0	9.9
Eighth	13.1	12.8	12.0
Ninth	16.1	15.6	15.8
Tenth	29.4	27.2	30.6
Total	100.0	100.0	100.0

Source: Table IV.3

Table IV.5
Costa Rica: Tax Incidence According to the Basic Income Concept
by Region and Deciles, 1988
(Percents)

Deciles	Total Country	Urban	Rural
First	33.0	25.7	37.5
Second	28.9	31.0	28.5
Third	31.1	32.4	29.8
Fourth	34.9	33.4	35.4
Fifth	36.6	35.0	37.3
Sixth	35.5	35.5	35.9
Seventh	37.2	37.4	37.3
Eighth	38.6	36.8	38.2
Ninth	37.4	37.2	41.7
Tenth	40.6	39.6	43.5
Total	37.2	36.4	38.6

Note: The threshold lines that define the deciles in each region and the country are different. Hence the country estimates cannot be directly obtained as a simple average of the regions.

Source: Author's estimates

Table IV.6
Costa Rica: Tax Incidence According to the Broad Income Concept
by Region and Deciles, 1988
(Percents)

Deciles	Total Country	Urban	Rural
First	101.6	115.0	94.3
Second	38.7	41.1	33.2
Third	37.7	38.7	33.8
Fourth	38.9	38.4	40.2
Fifth	38.1	41.0	37.8
Sixth	41.9	41.5	38.9
Seventh	39.5	38.7	38.1
Eighth	40.0	41.8	39.4
Ninth	41.5	38.9	41.1
Tenth	42.5	41.6	46.9
Total	41.2	41.1	41.3

Note: The threshold lines that define the deciles in each region and the country are different. Hence the country estimates cannot be directly obtained as a simple average of the regions.

Source: Author's estimates

APPENDIX V
TABLES AND FIGURES OF CHAPTER 5

Table V.1
Costa Rica: Public Expenditure by Categories, 1988
(Million of Colones and percents)

Public Expenditure Category	Amount	Per Cent Share
Total	88,468	100.0
Health and Sanitation	<u>21,164</u>	<u>23.9</u>
Preventive Medicine	3,175	3.6
Curative Medicine	17,989	20.3
Education	<u>14,906</u>	<u>16.8</u>
Pre School, Elementary and Special	5,353	6.1
High School	2,946	3.3
Higher Education	5,472	6.2
Other	1,135	1.3
Social Security	12,533	14.2
General Administration	10,932	12.4
Interest on Public Debt	<u>8,628</u>	9.8
On Internal Debt	5,065	
On External Debt	3,563	
Defense and Security	6,110	6.9
Road Expenditures	5,095	5.8
Housing and Urban/Rural Development	3,993	4.5
Agricultural Production Promotion	2,753	3.1
Economic Promotion	1,464	1.7
Recreation and Culture	890	1.0

Source: Elaborated by the author with data of the Ministry of Finance and the General Controllershship of the Republic, Costa Rica

Table V.2
Costa Rica, Total Country: Monthly Distribution of Public Expenditure by Category and Deciles, 1988
(Thousands of Colones)

Category	Deciles									
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Health and Sanitation	155,218.5	195,430.1	183,986.4	150,777.0	193,123.5	178,428.8	176,451.2	196,462.1	158,462.6	175,325.0
Education	79,467.6	104,977.7	125,916.6	117,361.2	107,909.1	98,430.5	151,203.8	150,295.5	157,273.9	149,330.4
Social Security	369,868.3	82,142.1	56,731.7	60,100.9	53,863.8	84,193.8	69,655.9	78,626.9	74,829.3	114,404.0
Gen.Admin, Defense and Security	86,630.2	100,121.8	109,352.8	116,453.7	121,424.3	134,205.8	143,436.8	160,478.8	184,621.7	263,440.9
Interest on Public Debt	24,141.6	28,913.4	28,720.7	27,120.6	25,106.4	27,520.3	26,668.8	30,861.7	56,552.6	235,552.4
Road Expenditures	13,168.0	11,008.5	12,563.3	19,602.5	22,126.7	26,224.8	30,300.4	51,242.7	63,166.7	175,179.8
Housing and Development	5,327.4	7,106.1	4,015.7	7,325.7	7,074.5	16,432.6	17,304.8	32,543.3	48,866.4	186,753.4
Promotion of Agric. Production	4,854.6	10,808.8	12,620.5	13,810.3	17,154.1	18,742.3	19,378.4	31,605.0	33,369.2	67,178.7
Economic Promotion	5,028.2	4,689.5	6,092.2	7,659.0	8,951.7	10,168.0	12,477.2	15,730.1	18,448.8	32,755.3
Recreation and Culture	3,642.1	3,181.1	4,193.4	5,756.7	5,097.2	6,419.0	6,865.0	9,243.2	11,655.7	18,151.6
Total Expenditure	747,346.4	548,379.1	544,193.3	525,967.6	561,831.3	600,765.9	653,742.4	757,089.3	807,246.9	1,418,071.6

Source: Author's Estimates

Table V.3
Costa Rica: Monthly Distribution
of Public Expenditures by Region and Deciles, 1988*
(Thousands of Colones)

Deciles**	Total Country	Urban	Rural
First	747,346.4	519,533.8	268,377.9
Second	548,379.1	312,107.5	230,653.9
Third	544,193.3	332,681.4	241,870.5
Fourth	525,967.6	317,951.5	245,464.3
Fifth	561,831.3	352,021.5	232,427.0
Sixth	600,765.9	346,127.1	234,986.2
Seventh	653,742.4	428,052.4	258,013.5
Eighth	757,089.3	410,735.9	278,975.5
Ninth	807,246.9	462,765.3	313,769.5
Tenth	1,418,071.6	823,846.4	554,272.8
Total	7,164,633.7	4,305,822.6	2,858,811.1

*/ Estimated with the Standard Assumption.

**/ Urban and Rural do not add to total by deciles for
the latter are defined separately for each region

Source: Author's estimates

Table V.4
Costa Rica: Monthly Distribution
of Public Expenditures by Region and Deciles, 1988
(Percents)

Deciles	Total Country	Urban	Rural
First	10.4	12.1	9.4
Second	7.7	7.3	8.1
Third	7.6	7.7	8.5
Fourth	7.3	7.4	8.6
Fifth	7.8	8.2	8.1
Sixth	8.4	8.0	8.2
Seventh	9.1	9.9	9.0
Eighth	10.6	9.5	9.8
Ninth	11.3	10.8	11.0
Tenth	19.8	19.1	19.4
Total	100.0	100.0	100.0

Source: Table V.3

Table V.5
Costa Rica: Public Expenditure Incidence According to the Basic Income Concept
by Region and Deciles, 1988
(Percents)

Deciles	Total Country	Urban	Rural
First	195.5	158.0	196.4
Second	76.5	62.8	91.0
Third	57.7	55.7	64.9
Fourth	47.6	44.7	54.2
Fifth	45.6	41.8	46.0
Sixth	38.8	33.7	43.4
Seventh	37.0	36.8	39.1
Eighth	34.6	29.9	35.4
Ninth	29.0	27.9	34.2
Tenth	30.3	29.9	30.4
Total	41.3	39.3	44.7

Source: Tables 3.1 and V.3

Table V.6
Costa Rica: Public Expenditure Incidence According to the Broad Income Concept
by Region and Deciles, 1988
(Percents)

Deciles	Total Country	Urban	Rural
First	601.7	706.8	493.3
Second	102.5	83.2	105.9
Third	70.1	66.4	73.5
Fourth	53.0	51.4	61.6
Fifth	47.4	48.9	46.5
Sixth	45.9	39.4	47.1
Seventh	39.3	38.1	40.0
Eighth	35.9	34.0	36.6
Ninth	32.3	29.1	33.7
Tenth	31.7	31.4	32.8
Total	45.7	44.4	47.9

Source: Tables 3.20 and V.3

Table V.7
Costa Rica, Monthly Distribution of Benefits of Government Total and General Expenditures,
According to Aaron and McGuire Methodology, and the Standard, Regressive and Progressive Cases. 1988
(millions of Colones)

Concept	Deciles										All Deciles	
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth		
	General Expenditures											
	Low Quantity of Pure Public Goods and Services 1/											
	$\phi=1$	52.6	65.5	80.8	93.6	108.4	118.4	144.5	179.7	207.1	369.5	1,420.2
	$\phi=1.5$	28.2	39.3	53.7	67.0	83.6	95.3	128.6	178.3	220.6	525.7	1,420.2
	$\phi=2$	14.0	21.7	33.0	44.3	59.5	70.9	105.6	163.4	217.0	690.8	1,420.2
	High Quantity of Public Goods and Services 2/											
	$\phi=1$	95.6	137.7	174.8	206.0	240.4	262.6	323.6	403.5	467.7	831.3	3,143.2
	$\phi=1.5$	46.0	79.6	113.8	145.6	183.6	209.7	286.7	399.3	498.2	1,180.6	3,143.2
	$\phi=2$	20.4	42.4	68.3	94.9	129.3	154.3	234.2	364.3	489.3	1,545.8	3,143.2
	The Reference Cases											
	Standard	86.6	100.1	109.4	116.5	121.4	134.2	143.4	160.5	184.6	263.4	1,420.2
	Regressive	142.0	142.0	142.0	142.0	142.0	142.0	142.0	142.0	142.0	142.0	1,420.2
	Progressive	31.2	58.2	76.7	90.9	100.8	126.4	144.9	178.9	227.2	384.9	1,420.2
	Total Public Expenditures											
	Low Quantity of Pure Public Goods and Services											
	$\phi=1$	721.3	518.7	522.8	512.1	557.0	592.7	661.8	779.9	828.3	1,470.1	7,164.6
	$\phi=1.5$	697.0	492.4	495.7	485.5	532.2	569.6	645.8	778.5	841.7	1,626.3	7,164.6
	$\phi=2$	682.7	474.9	475.0	462.8	508.1	545.2	622.9	763.6	838.2	1,791.4	7,164.6
	High Quantity of Public Goods and Services 2/											
	$\phi=1$	570.1	465.2	493.7	504.2	559.8	597.7	688.8	822.0	895.7	1,567.5	7,164.6
$\phi=1.5$	520.6	407.1	432.7	443.8	503.0	544.7	651.9	817.8	926.2	1,916.9	7,164.6	
$\phi=2$	495.0	369.9	387.2	393.1	448.6	489.3	599.4	782.7	917.3	2,282.0	7,164.6	
The Reference Cases												
Standard	747.3	548.4	544.2	526.0	561.8	600.8	653.7	757.1	807.2	1,418.1	7,164.6	
Regressive	990.5	664.9	614.0	587.3	592.1	656.9	656.6	713.9	702.1	986.5	7,164.6	
Progressive 3/	556.6	453.5	470.0	470.8	503.8	556.8	623.9	820.8	922.0	1,697.4	7,075.6	

1/ Only General Expenditures are treated according to Aaron and McGuire Methodology. Specific Expenditures are assumed to have some pure public good component, but this has been distributed according to assumptions on table 5.3

2/ General Expenditures and the pure public good component of specific expenditures are treated according to Aaron and MacGuire methodology. The pure public good component fraction of each specific good or service is assumed to be as follows: Health and Sanitation (.25), Education (.25), Social Security (.25), Interest on public Debt (.25), Road Expenditures (.5), Housing and Urban Development (.25), Promotion of Agricultural Production (.3), Economic Promotion (1.0), Recreation and Culture (.25)

3/ The total is lower because interests on external debt are assumed to be absorbed by foreign creditors. See table 5.3

Table V.8
Costa Rica, Monthly Distribution of Benefits of Government Total and General Expenditures.
According to Aaron and McGuire Methodology, and the Standard, Regressive and Progressive Cases, 1988
(Percents)

Concept	Deciles										All Deciles	
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth		
	General Expenditures											
	Low Quantity of Pure Public Goods and Services 1/											
	$\phi=1$	3.7	4.6	5.7	6.6	7.6	8.3	10.2	12.7	14.6	26.0	100.0
	$\phi=1.5$	2.0	2.8	3.8	4.7	5.9	6.7	9.1	12.6	15.5	37.0	100.0
	$\phi=2$	1.0	1.5	2.3	3.1	4.2	5.0	7.4	11.5	15.3	48.6	100.0
	High Quantity of Public Goods and Services 2/											
	$\phi=1$	3.0	4.4	5.6	6.6	7.6	8.4	10.3	12.8	14.9	26.4	100.0
	$\phi=1.5$	1.5	2.5	3.6	4.6	5.8	6.7	9.1	12.7	15.9	37.6	100.0
	$\phi=2$	0.7	1.3	2.2	3.0	4.1	4.9	7.5	11.6	15.6	49.2	100.0
	The Reference Cases											
	Standard	6.1	7.0	7.7	8.2	8.5	9.4	10.1	11.3	13.0	18.5	100.0
	Regressive	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	100.0
	Progressive	2.2	4.1	5.4	6.4	7.1	8.9	10.2	12.6	16.0	27.1	100.0
	Total Public Expenditures											
	Low Quantity of Pure Public Goods and Services											
$\phi=1$	10.1	7.2	7.3	7.1	7.8	8.3	9.2	10.9	11.6	20.5	100.0	
$\phi=1.5$	9.7	6.9	6.9	6.8	7.4	8.0	9.0	10.9	11.7	22.7	100.0	
$\phi=2$	9.5	6.6	6.6	6.5	7.1	7.6	8.7	10.7	11.7	25.0	100.0	
High Quantity of Public Goods and Services 2/												
$\phi=1$	8.0	6.5	6.9	7.0	7.8	8.3	9.6	11.5	12.5	21.9	100.0	
$\phi=1.5$	7.3	5.7	6.0	6.2	7.0	7.6	9.1	11.4	12.9	26.8	100.0	
$\phi=2$	6.9	5.2	5.4	5.5	6.3	6.8	8.4	10.9	12.8	31.9	100.0	
The Reference Cases												
Standard	10.4	7.7	7.6	7.3	7.8	8.4	9.1	10.6	11.3	19.8	100.0	
Regressive	13.8	9.3	8.6	8.2	8.3	9.2	9.2	10.0	9.8	13.8	100.0	
Progressive	7.9	6.4	6.6	6.7	7.1	7.9	8.8	11.6	13.0	24.0	100.0	

1/ Only General Expenditures are treated according to Aaron and McGuire Methodology. Specific Expenditures are assumed to have some pure public good component, but this has been distributed according to assumptions of table 5.3.

2/ General Expenditures and the pure public good component of specific expenditures are treated according to Aaron and MacGuire methodology. The pure public good component fraction of each specific good or service is assumed to be as follows: Health and Sanitation (25), Education (25), Social Security (25), Interest on public Debt (25), Road Expenditures (5), Housing and Urban Development (25), Promotion of Agricultural Production (3), Economic Promotion (1.0), Recreation and Culture (25).

Source: Table V.7

Table V.9
Costa Rica: Decomposition of the Gini Coefficient of Public Expenditures by Additive Components*

Tax Category	Total Expenditures	Health and Sanitation	Education	Social Security	General	Interests on Public Debt	Road Expenditures	Housing and Development	Promotion of Agric. Production	Economic Promotion	Recreation and Culture
Expenditure Share	100.0	24.6	17.3	14.6	19.8	7.1	5.9	4.6	3.2	1.7	1.2
Expenditure Gini		0.05	0.12	0.33	0.18	0.42	0.48	0.64	0.36	0.34	0.30
Expenditure Pseudo Gini		0.00	0.10	-0.21	0.18	0.41	0.48	0.63	0.36	0.34	0.29
Expenditure Correlation Characteristics		0.06	0.84	-0.63	1.00	0.98	1.00	1.00	1.00	1.00	0.99
Gini Decomposition	0.13	0.0007	0.0174	-0.0304	0.0356	0.0292	0.0283	0.0294	0.0115	0.0058	0.0036

*/ Estimates based on the standard assumption

Source: Author's Estimates

APPENDIX VI
TABLES AND FIGURES OF CHAPTER 6

Table VI.1
Costa Rica: Net Fiscal Incidence.
According to the Broad Income concept.
by Regions, 1988 ^{1/}
(Percents)

Deciles	Country	Urban	Rural
First	500.1	591.9	342.1
Second	63.7	42.2	72.7
Third	32.4	27.8	44.6
Fourth	14.1	14.7	24.0
Fifth	9.3	7.9	9.7
Sixth	3.9	-2.1	3.7
Seventh	-0.2	-0.6	1.9
Eight	-4.1	-7.8	-2.8
Ninth	-9.2	-9.8	-8.5
Tenth	-10.7	-9.8	-12.9
Total	4.6	3.6	6.1

^{1/} For the Standard Scenario. Deficit included

Source: Author's estimates

Table VI.2
Costa Rica: Net Fiscal Incidence according to the Share Measure,
by Regions, 1988 ^{1/}
(Percents)

Deciles	Broad Income Shares			Adjusted Broad Income Share			Fiscal Incidence		
	Country	Urban	Rural	Country	Urban	Rural	Country	Urban	Rural
First	0.8	0.8	1.0	4.5	5.1	4.3	3.8	4.3	3.3
Second	3.4	3.9	3.7	5.3	5.3	5.9	1.9	1.4	2.2
Third	5.0	5.2	5.1	6.3	6.4	7.0	1.3	1.2	1.9
Fourth	6.3	6.2	6.3	6.9	6.9	7.4	0.6	0.7	1.1
Fifth	7.6	7.5	8.1	7.9	7.8	8.4	0.3	0.3	0.3
Sixth	8.4	9.1	9.2	8.3	8.6	9.0	-0.1	-0.5	-0.2
Seventh	10.6	11.6	10.8	10.1	11.2	10.3	-0.5	-0.4	-0.5
Eight	13.5	12.5	12.7	12.3	11.1	11.6	-1.1	-1.4	-1.1
Ninth	16.0	16.4	16.0	13.9	14.3	13.8	-2.1	-2.1	-2.2
Tenth	28.5	26.8	27.1	24.4	23.3	22.3	-4.2	-3.5	-4.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0

^{1/} Standard Scenario. Deficit Included

Source: Author's estimates

Table VI.3
Costa Rica: Net fiscal Incidence,
According to Alternative Income concepts, 1988 1/
(Percents)

Deciles	Basic Income	Adjusted Broad Income
First	162.5	83.3
Second	47.6	38.9
Third	26.7	24.5
Fourth	12.7	12.4
Fifth	8.9	8.5
Sixth	3.3	3.8
Seventh	-0.2	-0.2
Eight	-4.0	-4.3
Nineth	-8.3	-10.2
Tenth	-10.3	-12.0
Total	4.1	4.4

1/ For the Standard Scenario

Source: Author's estimates

Figure VI.2
Costa Rica: Net Fiscal Incidence, according to Adjusted Broad Income Concept, 1988

APPENDIX VII

**DEFINITION OF THE GINI AND THE PSEUDO GINI
COEFFICIENTS**

DEFINITION OF THE GINI AND THE PSEUDO GINI COEFFICIENTS¹

a) The arrangement of families

Suppose there are n families with income Y_i ($i=1,2,\dots,n$) and compute the income fractions y_i :

- (1) $Y = (Y_1, Y_2, \dots, Y_n) \geq 0$
- (2) $s_y = Y_1 + Y_2 + \dots + Y_n > 0$, and
- (3) $y = (y_1, y_2, \dots, y_n) = (Y_1/s_y, Y_2/s_y, \dots, Y_n/s_y)$, where
- (4) $y_1 + y_2 + \dots + y_n = 1$ and
- (5) $Y_1 \leq Y_2 \leq \dots \leq Y_n$

In equation (2) s_y is the sum of incomes for all families: in equation (3) the income fractions (y_i) form a system of weights.

Family incomes are arranged in a monotonically nondecreasing order, such that the first family is poorest and the last family is wealthiest.

b) The Gini Coefficient and the Lorenz Curve

The Lorenz curve is a real-valued function defined on $(1/n, 2/n, \dots, n/n)$:

$$(6) \quad L_Y(j/n) = y_1 + y_2 + \dots + y_j \quad (j = 1, 2, \dots, n)$$

¹ This Appendix draws heavily of on the detailed exposition on the subject by Fei, Ranis and Kuo (1979). See J.C.H. Fei, G. Ranis and S.W.Y. Kuo, Growth With Equity: The Taiwan Case, (New York: Oxford University Press, 1979) pp. 328 - 372.

For example, if n equals 4:

$$(7) \quad Y = (y_1, y_2, y_3, y_4) = (0.1, 0.2, 0.3, 0.4).$$

Then, denoting B the area under the Lorenz curve of the unit square of figure II.1, the Gini coefficient is defined as:

$$(8) \quad G_y = (1/2 - B)/(1/2) = 1 - 2B.$$

Thus, G_y is the area above the Lorenz curve inside the triangle OED, expressed as a fraction on that triangle's area, which is $1/2$. For the numerical example in equation (7) the Gini coefficient is 0.25. The Gini coefficient, according to its definition in equation (8), is a nonnegative fraction. It takes on extreme values of 1 to represent extreme inequality and zero to represent extreme equality. For these extremes:

$$(9) \quad Y_1 = Y_2 = \dots = Y_n, \text{ which implies that } G_y = 0, \text{ and} \\ \text{(perfect equality)}$$

$$(10) \quad Y_1 = Y_2 = \dots = Y_{n-1} = 0, \text{ which implies that } G_y = 1. \\ \text{(perfect inequality)}$$

When equality is perfect, the Lorenz curve coincides with the diagonal OD in figure 1. When inequality is perfect and n is large, the Lorenz curve coincides with the unit square's edge OED.

c) The Gini Coefficient as Related to the Rank Index of Y

The Gini coefficient of Y , as defined in equation (8), is:

$$(11) \quad G_y = au_y - B, \text{ where}$$

$$(a) \quad a = 2/n,$$

Figure II.1 The Lorenz Curve

- (b) $B = (n+1)/n$, and
- (c) $u_y = r_1 y_1 + r_2 y_2 + \dots + r_n y_n$, where
- (d) $y_1 \leq y_2 \leq \dots \leq y_n$ and
- (e) $r_1 = 1, r_2 = 2, \dots, r_n = n$.

The term r_i is the income rank of the i th family. The term u_y is the weighted average of income ranks and will be referred to as the rank index of Y . Equation 12 states that the Gini coefficient is a linear transformation of the rank index of Y . Using the figures from the numerical example in equation (7) gives:

$$(12) \quad u_y = 1(0.1) + 2(0.2) + 3(0.3) + 4(0.4) = 3 \text{ and}$$

$$(13) \quad G_y = (2/4)(3) - 5/4 = 0.25$$

d)The Pseudo Gini Coefficient

Let $Y = Y = (Y_1, Y_2, \dots, Y_n)$ be an income distribution pattern which is not necessarily monotonically arranged -that is, which may not satisfy the conditions of expression (5). Now define a pseudo Lorenz curve as:

$$(14) \quad L_y^s(j/n) = y_1 + y_2 + \dots + y_j, \quad (j = 1, 2, \dots, n)$$

For example, take the following numerical case:

$$(15) \quad y = (y_1, y_2, y_3, y_4) = (0.2, 0.4, 0.1, 0.3).$$

A pseudo Gini coefficient can be defined in a way similar to equation (8), as the area under the pseudo Lorenz curve:

$$(16) \quad PG_y = 1 - 2B$$

The difference between the Gini coefficient defined in equation (8) and the pseudo Gini coefficient defined above is that for G_y the terms of the expression $Y = (Y_1, Y_2, \dots, Y_n)$ are arranged in a monotonically nondecreasing order, thus satisfying the conditions of expression (5) while for Pg_y they are not so arranged.

The pseudo Gini coefficient can also be defined in terms of the rank index of Y :

$$(17) \quad PG_y = a\hat{u}_y - B, \text{ where}$$

$$(18) \quad \hat{u}_y = r_1Y_1 + r_2Y_2 + \dots + r_nY_n$$

and a , B , and r_i are defined as in equation 12.

To illustrate the case, the numerical example in equation (15) can be used to calculate the pseudo Gini coefficient:

$$(19) \quad \hat{u}_y = 1(0.2) + 2(0.4) + 3(0.1) + 4(0.3) = 2.5;$$

$$(20) \quad PG_y = (2/4)(2.5) - 5/4 = 0.$$

The pseudo Gini coefficient, as defined, is an abstract, geometrical concept. For a monotonically nonincreasing pattern of income distribution the pseudo Gini coefficient is the negative of the Gini coefficient.

e) The Additive Factor Components Problem

Frequently family income is the sum of several types of income. Table II.1 shows an example with five families and three income components. In this example the factor

income components correspond to the functional distribution of income. Alternatively, we could be dealing with different types of taxes paid by families or with a range of transfers and public goods and services received by different families. A components problem arises when there is a classification of the sources of income, of the types of taxes or of categories of public goods and services.

Taking income as an example, when there are n families and p income components, the components problem is summarized by:

$$(21) \quad Y_i = W_i^1 + W_i^2 + \dots + W_i^p; \quad (i = 1, 2, \dots, n)$$

$$(22) \quad S_i = W_1^i + W_2^i + \dots + W_n^i; \quad (i = 1, 2, \dots, p)$$

$$(23) \quad s_y = S_1 + S_2 + \dots + S_p;$$

$$(24) \quad f_i = S_i / s_y.$$

$$(25) \quad 1 = f_1 + f_2 + \dots + f_p;$$

$$(26) \quad Y_1 \leq Y_2 \leq \dots \leq Y_n$$

In equation (22) the total income $[Y_i]$ of the i th family has p components. In equation (24) the values of f_i ($i = 1, 2, \dots, p$) form a system of weights and correspond to the fraction of the i th type of income received by all families. It will be assumed that total family income $[Y_i]$ is arranged in a monotonically nondecreasing order as in equation (26).

**Table II.1. Numerical Example of the Problem
of Additive Factor Components**

Item	Family 1	Family 2	Family 3	Family 4	Family 5	Total
Wage Income	3	1	17	15	9	45
<i>Wage income rank</i>	2	1	5	4	3	—
Property income	0	0	2	8	25	35
<i>Property income rank</i>	1	2	3	4	5	—
Transfer income	8	12	0	0	0	20
<i>Transfer income rank</i>	4	5	3	2	1	—
Total income	11	13	19	23	34	100
<i>Total income rank</i>	1	2	3	4	5	—

The components problem can be restated in vector notation:

$$(27) \quad Y = W^1 + W^2 + \dots + W^p, \text{ where}$$

$$(28) \quad Y = (Y_1, Y_2, \dots, Y_n) \text{ and}$$

(pattern of total income)

$$(29) \quad W^i = (W^i_1, W^i_2, \dots, W^i_n) \quad (i = 1, 2, \dots, p)$$

(pattern of the i th factor component)

Denote the Gini coefficient of Y by $G(Y)$ or G_y , and the Gini coefficient of W^i by $G(W^i)$ or G_i . The factor income component problem is to describe the relations between the total Gini [G_y] and the factor Ginis [G_i].

f) Decomposition of G_y into Pseudo Factor Ginis

When the total income pattern (Y) is monotonically arranged, a particular factor component (W_i) may not be monotonically arranged (see for instance table II.1). To see how the earlier analysis can contribute to the understanding of the factor components problem, for each factor component a pseudo factor Gini [PG_i] can be defined:

$$(30) \quad PG_i = (2/n)\hat{u}_i - (n+1)/n, \text{ where}$$

$$(31) \quad \hat{u}_i = r_1 w_1^i + r_2 w_2^i + \dots + r_n w_n^i, \text{ where } (i = 1, 2, \dots, n)$$

$$(32) \quad r_i = i,$$

$$(33) \quad w_j^i = W_j^i / S_i, \text{ and}$$

$$(34) \quad w_1^i + w_2^i + \dots + w_n^i = 1.$$

It can be demonstrated that the Gini coefficient is the weighted average of the pseudo factor Ginis, that is:

$$(35) \quad G_y = f_1 PG_1 + f_2 PG_2 + \dots + f_p PG_p$$

where the distributive shares (f_i) defined in equation (24) are the weights.²

There is a natural interpretation of the pseudo Gini coefficient (PG_i) as the concentration ratio, which measures the extent to which the i th factor component is concentrated among wealthy families. However, it should be taken into consideration

² See C.H.Fei, et al., op.cit. pp.334

that the Pseudo Gini coefficient (PG_i) not only differs from G_i , but is in fact a more complicated concept. While the factor Gini coefficient [G_i] measures the degree of inequality of a factor component by itself, the pseudo Gini coefficient is definable only in terms of the relationship between the pattern of factor income, given by $(W_1^i + W_2^i + \dots + W_n^i)$, and the pattern of total family income, given by $(Y_1, Y_2, \dots, Y_n)$. Thus, the forces determining PG_i are more complex than those determining G_i .

g) Exact Decomposition of G_y into Factor Ginis

For each factor component (W_i) a factor Gini (G_i) and a pseudo factor Gini (PG_i) can be computed. The correlation characteristic of the i th factor can then be calculated:

$$(36) \quad R_i = PG_i/G_i \quad (i= 1, 2, \dots, p)$$

(factor correlation characteristics)

Equation 36 immediately leads to:

$$(37) \quad G_y = f_1 R_1 G_1 + f_2 R_2 G_2 + \dots + f_p R_p G_p.$$

Equation (37) is referred to as the exact Gini decomposition formula. It shows that the three types of factors affect G_y . If an income component is positively correlated with total family income ($R_i > 0$), then this component contributes heavily to total income inequality when the factor income is unequally distributed (indicated by a large G_i) and when the share of this factor is large (indicated by a large f_i). Conversely, when an income component is negatively correlated with total family income ($R_i < 0$), a large G_i and a large f_i indicate that the component contributes to total income equality.

APPENDIX VIII

**MAIN QUESTIONNAIRES OF THE INCOME AND EXPENDITURE
SURVEY**

MINISTERIO DE ECONOMIA, INDUSTRIA Y COMERCIO
DIRECCION GENERAL DE ESTADISTICA Y CENSOS

UNIDAD EJECUTORA
CONVENIO MEC BID CEPAL ATN SF 2419 C R

ENCUESTA NACIONAL DE INGRESOS Y GASTOS DE LOS HOGARES COSTA RICA 1987 - 1988

4

PRESUPUESTO DEL HOGAR

1. LOCALIZACION

Provincia : _____
Cantón : _____
Distrito : _____
Teléfono : _____
Dirección : _____

1 2
Reg.

4 11
Segmento

12 13
Vivienda

14
Hogar

2. SEMANA DE LA ENTREVISTA

Del : 15 20

Al : 21 26

3. RESPONSABLES DE LA ENTREVISTA

Nombre del Entrevistador : _____

Nombre del Supervisor : _____

I N D I C E

GASTOS MENSUALES

401. Vivienda y Servicios	1
402. Combustible para Cocinar o Alumbrar la Vivienda	1
403. Servicio Doméstico	1
404. Limpieza y Cuidados del Hogar	2
405. Cuidados Personales	3
406. Servicios Médicos y Conservación de la Salud	4
407. Educación	5
408. Cultura y Recreación	6

GASTOS TRIMESTRALES

409. Vestido y Calzado	7
410. Servicios Médicos y Conservación de Salud	15
411. Reparación y Conservación de la Vivienda	16

GASTOS SEMESTRALES

412. Muebles, Accesorios, Enseres Domésticos y Cuidados del Hogar	17
413. Transporte y Comunicaciones	22
414. Educación, Cultura, Esparcimiento	24
415. Otros Gastos	26
416. Autosuministro de bienes y servicios no alimenticios	28
417. Autoconsumo de leña	28
418. Adquisición de leña	28

500. INGRESO DE LOS MIEMBROS DEL HOGAR

Perceptor Nº 1	
Perceptor Nº 2	31
Perceptor Nº 3	35
Perceptor Nº 4	39
	43

600. TRANSACCIONES FINANCIERAS Y GASTOS NO DE CONSUMO

Perceptor Nº 1	
Perceptor Nº 2	33
Perceptor Nº 3	37
Perceptor Nº 4	41
	45

PERSONA N°

10101

(Páginas 1 a 27)

GASTOS MENSUALES

400 · GASTOS DE CONSUMO DEL HOGAR

401 · VIVIENDA Y SERVICIOS

En el mes de

¿CUANTO GASTO POR CONCEPTO DE

CONCEPTO	CODIGO	CANTIDAD	VALOR TOTAL
(1)	(2)	(3)	(4)
SI LA VIVIENDA ES ALQUILADA: ¿Cuanto pago el último mes por alquiler?	310101	1	
SI LA VIVIENDA ES PROPIA: Si tuviera que alquilar esta vivienda para habitarla, ¿Cuanto cree que le costaría el alquiler?	310201	1	
SI LA VIVIENDA ES CEDIDA SIN CONTRAPRESTACION: Si tuviera que alquilar esta vivienda para habitarla, ¿Cuanto cree que le costaría el alquiler?	310301	1	
SI LA VIVIENDA ES PROPIA Y LA ESTA PAGANDO A PLAZOS: ¿Cuanto pago el último mes por amortización a la deuda?	310401	1	
3200· SERVICIOS DE LA VIVIENDA			
Telefono	320401	1	
El pago por servicios municipales es: Anual ☐ Trimestral ☐ Mensual ☐ N/A ☐ ¿Cuál fue el monto del último recibo?	320101	1	
Electricidad kilovatios y valor del último recibo?	320201	000	
El pago por el servicio de agua es: Anual ☐ Trimestral ☐ Mensual ☐ N/A ☐ ¿Cuales fueron los metros cubicos y el valor del último recibo?	320301	000	
En el último mes ¿cuanto gasto por los servicios de la vivienda secundaria?	320501	1	
TOTAL	320099		

402 · COMBUSTIBLE PARA COCINAR O ALUMBRAR LA VIVIENDA

En el mes de

¿CUANTO GASTO POR CONCEPTO DE

CONCEPTO	CODIGO	CANTIDAD	UNIDAD DE MEDIDA	VALOR TOTAL
(1)	(2)	(3)	(4)	(5)
3301· COMBUSTIBLE				
Gas	330103			
Carbón	330101			
Carbón	330102			
TOTAL	330199			

403 · SERVICIOS DOMESTICOS

En el mes de

¿CUANTO GASTO POR CONCEPTO DE

CONCEPTO	CODIGO	USO DE LA OFICINA	PAGO MENSUAL	OBSERVACIONES
(1)	(2)	(3)	(4)	(5)
4601· SERVICIOS DOMESTICOS				
Empleado (todo servicio)	460103			
Cocinera	460102			
Lavandera	460107			
Jardinero	460106			
Guarda	460104			
TOTAL	460199			

404 LIMPIEZA Y CUIDADOS DEL HOGAR

En el último mes de ¿CUANTO GASTO USTED O ALGUN MIEMBRO DEL HOGAR POR CONCEPTO DE

USO DE LA OFICINA			ARTICULOS COMPRADOS	MARCA	CANTIDAD Y UNIDAD DE MEDIDA	VALOR C
CODIGO	CANTIDAD	VALOR C	(1)	(2)	(3)	(4)
31-36	37-44	45-52				
4501			CUIDADOS DEL HOGAR			
450108			Betun (líquido)			
450109			Betun (sólido)			
450111			Blanqueador para ropa			
450113			Bombillo			
450114			Brillo			
450115			Candela			
450123			Cera para piso (líquida)			
450124			Cera para piso (sólida)			
450126			Desinfectante (de baño)			
450131			Detergente			
450132			Escoba			
450133			Espiral			
450134			Fósforos			
450137			Insecticida (líquido)			
450139			Jabón para lavar platos (líquido)			
450140			Jabón para lavar platos (sólido)			
450141			Jabón para ropa (de barra, bola, etc.)			
450142			Limpiador desinfectante			
450143			Limpiador para vidrios			
450146			Mechas para pisos			
450149			Papel absorbente			
450152			Papel higiénico			
450157			Servilletas de papel			
450159			Tinte para calzado			
450163			Vasos y platos desechables			
450199			SUBTOTAL			
4502			SERVICIOS PARA EL HOGAR			
450201	000		Fumigación, exterminación			
450204	000		Lavado de ropa			
450206	000		Planchado fuera de casa			
450207	000		Servicio de lavandería			
	000					
	000					
	000					
	000					
450299			SUBTOTAL			

En el último mes de

¿CUANTO GASTO USTED O ALGUN MIEMBRO DEL HOGAR POR CONCEPTO DE:

[illegible][illegible]

En el último mes de ¿CUANTO GASTO USTED O ALGUN MIEMBRO DE SU HOGAR POR CONCEPTO DE:

USO DE LA OFICINA			ARTICULOS COMPRADOS			
CODIGO	CANTIDAD	VALOR	(1)	MARCA	CANTIDAD Y UNIDAD DE MEDIDA	VALOR
31 36	37 44	45 52	(1)	(2)	(3)	(4)
7103			ARTICULOS RECREATIVOS Y DEPORTIVOS			
710303	000		Animal domestico			
710304	000		Aparatos de gimnasia			
710307	000		Bicicletas para niños			
710308	000		Bola de baloncesto			
710309	000		Bola de futbol			
710311	000		Bola de voleibol			
710312	000		Bola y juguetes inflables			
710314	000		Cassette en blanco			
710317	000		Disco			
710325	000		Juego recreativo			
710326	000		Juguete de cuerda y fricción			
710327	000		Juguete de pila o batería			
710328	000		Muñeca			
710329	000		Patines			
710335	000		Roller de cámara fotografica			
710337	000		Triciclo, andadera y coche			
	000					
	000					
	000					
	000					
	000					
710399			SUBTOTAL			
7201			SERVICIOS DE ESPARCIMIENTO			
720101	000		Clase de baile			
720103	000		Clase de deporte (natacion, etc.)			
720105	000		Entrada al cine			
720106	000		Entrada al estadio			
720107	000		Entrada a museos, parques, etc.			
720108	000		Entrada a teatro, café-teatro			
720109	000		Gasto en bingo			
720110	000		Gasto clubes nocturnos, bailes			
	000					
	000					
	000					
	000					
720199			SUBTOTAL			
7301			LIBROS Y REVISTAS			
730104	000		Libro (diferente texto de estudio)			
730107	000		Revistas en general			
730109	000		Semanario			
730110	000		Suscripción a periodicos			
730111	000		Suscripción a revistas en general			
	000					
	000					
	000					
730199			SUBTOTAL			

GASTOS TRIMESTRALES

409. VESTIDO Y CALZADO

En los últimos tres meses de ¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?:

USO DE LA OFICINA				ARTICULOS COMPRADOS	DESCRIPCION	CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CONTADO DE LA COMPRA C.	1. Cont. 2. Cred.	COMPRAS AL CREDITO			Nº DE ABONOS
CODIGO	CANTIDAD	VALOR C.	1. Cont. 2. Cred.						PRIMA	VALOR DEL ABONO C.	(7)	(8)
31-38	37.44	45.82	53.60									
2101				PRENDAS DE VESTIR PARA HOMBRES DE 12 AÑOS Y MAS								
210103	000			Buzo								
210104	000			Calzoncillo								
210105	000			Camisa (manga corta)								
210106	000			Camisa (manga larga)								
210107	000			Camiseta (ropa interior)								
210108	000			Camiseta sport (T-shirt)								
210111	000			Corbata								
210112	000			Feja								
210115	000			Medias								
210118	000			Pantalón								
210120	000			Pañuelo								
210121	000			Pijama								
210122	000			Ropa interior								
210124	000			Saco sport								
210131	000			Uniforme escolar								
210134	000			Vestido entero								
	000											
	000											
	000											
	000											
	000											
210199	000			SUBTOTAL								

COMPRAS AL CREDITO

CONCEPTO		CODIGO	USO OF.	MONTO TOTAL PAGADO C.	OBSERVACIONES
ABONOS o primas pagadas el último mes de por las compras de estos artículos realizadas en		210197	1		
los últimos tres meses de a					
Abonos pagados el último mes de por las compras de estos artículos realizadas		210198	1		
antes del mes de					

409- VESTIDO Y CALZADO (Continuación)

En los últimos tres meses de a ¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?

USO DE LA OFICINA				ARTICULOS COMPRADOS	DESCRIPCION	CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CONTADO DE LA COMPRA \$	1 Cont. 2 Cred.	COMPRAS AL CREDITO		Nº DE ABONOS
CODIGO	CANTIDAD	VALOR \$	1 Cont. 2 Cred.						PRIMA	VALOR DEL ABONO \$	
2102	37.44	48.52	53.40								
PRENDAS DE VESTIR PARA MUJERES DE 12 AÑOS Y MAS											
210203	000			Blusa							
210207	000			Calzon (Bloomer)							
210208	000			Camisa de dormir							
210209	000			Camiseta sport (T-shirt)							
210215	000			Conjunto (sagüa y saco)							
210218	000			Enagua							
210220	000			Faja elástica							
210221	000			Fustán							
210225	000			Medias de lana o hilo							
210226	000			Medias de nylon cortas							
210227	000			Medias de nylon (panty)							
210229	000			Pantalón							
210232	000			Pijama							
210239	000			Tallador (brassier)							
210241	000			Uniforme escolar							
210245	000			Vestido							
	000										
	000										
	000										
	000										
	000										
210299	000			SUBTOTAL							

COMPRAS AL CREDITO

CONCEPTO		CODIGO	USO OF.	MONTO TOTAL PAGADO \$	OBSERVACIONES
ABONOS o primas pagadas el último mes de por las compras de estos artículos realizadas en los últimos tres meses de		210297	1		
ABONOS pagados el último mes de por las compras de estos artículos realizadas antes del mes de		210298	1		

409- VESTIDO Y CALZADO (Continuación)

En los últimos tres meses de CUSTED O ALGUN MIEMBRO DEL HOGAR COMPRO?:

USO DE LA OFICINA				ARTICULOS COMPRADOS	DESCRIPCION	CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CONTADO DE LA COMPRA	1 Cont 2 Cred	COMPRAS AL CREDITO		Nº DE ABONOS
CODIGO	CANTIDAD	VALOR	1. Cont 2. Cred						PRIMA	ABONO	
31-36	37.44	45.52	53.60								
2103											
PRENDAS DE VESTIR PARA NIÑOS DE 2 AÑOS A MENOS DE 12 AÑOS											
210302	000			Buzo							
210303	000			Calzoncillo							
210304	000			Calzón plástico							
210305	000			Camisa (manga corta)							
210306	000			Camisa (manga larga)							
210307	000			Camiseta (ropa interior)							
210308	000			Camiseta sport (T-Shirt)							
210312	000			Faja							
210316	000			Juego pantalón y camiseta							
210319	000			Pantalón corto							
210321	000			Pantalón largo							
210324	000			Pañuelo							
210325	000			Pijama							
210329	000			Short							
210331	000			Sueter							
210333	000			Uniforme escolar							
	000										
	000										
	000										
	000										
210399	000			SUBTOTAL							

COMPRAS AL CREDITO

CONCEPTO		CODIGO	USO OF	MONTO TOTAL PAGADO - \$	OBSERVACIONES
ABONOS o primas pagadas el último mes de por las compras de estos artículos realizadas en a		210397	1		
ABONOS pagados el último mes de por las compras de estos artículos realiza das antes del mes de		210398	1		

¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?:

USO DE LA OFICINA				
CODIGO	CANTIDAD	VALOR \$.	1. Cont 2. Cred	
31-38	37.44	45.92		53.80
2104				
210402	000			
210407	000			
210408	000			
210409	000			
210413	000			
210416	000			
210417	000			
210420	000			
210422	000			
210427	000			
210429	000			
210435	000			
	000			
	000			
	000			
	000			
	000			
	000			
	000			
210498	000			

ARTICULOS COMPRADOS	DESCRIPCION	CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CONTADO DE LA COMPRA \$	Il. Cont. 2. Cred.	COMPRAS AL CREDITO		
					PRIMA	VALOR DEL ABONO \$	Nº DE ABONOS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PRENDAS DE VESTIR PARA NIÑAS DE 2 A MENOS DE 12 AÑOS							
Blusa							
Calzon							
Camiseta (ropa interior)							
Camieta sport (T-shirt)							
Combinacion							
Delantal							
Enagua							
Medias cortas							
Pantalon							
Pijama							
Short							
Vestido							
SUBTOTAL							

COMPRA AL CREDITO

CONCEPTO	USO OF.	MONTO TOTAL PAGADO. \$.	OBSERVACIONES
ABONOS o primas pagadas el último mes de realizadas en los últimos tres meses de	210497		
ABONOS pagados el último mes de realizados antes del mes de	210498		

En los últimos tres meses de

¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?:

USO DE LA OFICINA				
CODIGO	CANTIDAD	VALOR	1 Cont	2 Cred
31-36	37.44	46.52	53.60	
2105				
210501	000			
210504	000			
210505	000			
210507	000			
210508	000			
210511	000			
210512	000			
210513	000			
210520	000			
210521	000			
210523	000			
210525	000			
210528	000			
210533	000			
	000			
	000			
	000			
	000			
	000			
	000			
210599	000			

(1)	(2)	(3)	(4)	(5)	(6)
PRENDAS DE VESTIR Y COMPLEMENTOS PARA NIÑOS MENORES DE 2 AÑOS (Ambos sexos)					
Babero					
Cañon					
Calzon plástico					
Camiseta (ropa interior)					
Camiseta sport (T shirt)					
Chupeta					
Chupon					
Conjunto de vestir					
Mantilla de tela					
Medias					
Pantalón					
Pañal desechable					
Pijama					
Vestido					
SUBTOTAL					

COMPRESS AL CREDITO

CONCEPTO	CODIGO	USO OF	MONTO TOTAL PAGADO \$	OBSERVACIONES
ABONOS o primas pagados el ultimo mes de en los ultimos tres meses de	210597	1		
ABONOS pagados el ultimo mes de antes del mes de	210598	1		

En los últimos tres meses se

¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?:

COMPRA S A L CREDITO

CONCEPTO	CODIGO	USO OF	MONTO TOTAL PAGADO - \$	OBSERVACIONES
ABONOS o primas pagadas el ultimo mes de _____ en los últimos tres meses de _____	210697	1		
ABONOS pagados el ultimo mes de _____ antes del mes de _____	210698	1		

En los últimos tres meses de ¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?

USO DE LA OFICINA				
CODIGO	CANTIDAD	VALOR - \$ -	1. Cont 2. Cred.	1. Cont 2. Cred.
31.36	37.44	46.62		53.60
2201				
220101	000			
220102	000			
220103	000			
220104	000			
220105	000			
220106	000			
220107	000			
220108	000			
220109	000			
220110	000			
220111	000			
220112	000			
220113	000			
220114	000			
220115	000			
	000			
	000			
	000			
	000			
	000			
220199	000			

ARTICULOS COMPRADOS	DESCRIPCION	CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CONTADO DE LA COMPRA	Cant. Z. Cred	COMPRAS AL CREDITO		
					PRIMA	VALOR DEL ABONO p	Nº DE ABONOS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CALZADO							
Botas, botines de cuero							
Botas, botines de gamuza							
Botas, botines de hule							
Pantuflos							
Sandalias de cuero							
Sandalias de hule							
Sandalias de lona							
Zapatos de lona							
Zapatos tenis							
Zapatos de cuero							
Zapatos de cuero (tipo escolar)							
Zapatos de gamuza							
Zapatos de hule							
Zapatos plasticos							
Zapatos de futbol							
SUBTOTAL							

COMPRA S A L CREDITO

CONCEPTO	CODIGO	USO OF	MONTO TOTAL PAGADO. \$	OBSERVACIONES
ABONOS o primas pagadas el último mes de , en los últimos tres meses de	220197	1		por las compras de estos artículos realizadas a
ABONOS pagados el último mes de antes del mes de.	220198	1		por las compras de estos artículos realizadas

En los últimos tres meses de

3

¿CUANTO GASTO USTED O ALGUN MIEMBRO DE SU HOGAR POR CONCEPTO DE

USO DE LA OFICINA		
CODIGO 31-36	CANTIDAD 37-44	VALOR ¢ 45-52
2202		
	000	
	000	
	000	
	000	
	000	
220299		
2203		
	000	
	000	
	000	
	000	
	000	
220399		
2108		
	000	
	000	
	000	
	000	
	000	
210899		
2109		
	000	
	000	
	000	
	000	
	000	
210999		
2107		
210701		
210703		
210704		
210706		
210707		
210711		
210712		
210714		
210717		
210799		
2110		
	000	
	000	
	000	
	000	
211099		

ARTICULOS COMPRADOS (1)	MARCA (2)	CANTIDAD Y UNIDAD DE MEDIDA (3)	VALOR ¢ (4)
REPARACION DE CALZADO			
SUBTOTAL			
CALZADO A LA MEDIDA			
SUBTOTAL			
CONFECCION DE PRENDAS DE VESTIR			
SUBTOTAL			
REPARACION DE PRENDAS DE VESTIR			
SUBTOTAL			
PASAMANERIA			
Agujas, alfileres			
Botones, broches			
Cinta métrica			
Elástico			
Encaje			
Hilo para coser			
Hilo para tejer			
Lentejuelas			
Zipper			
SUBTOTAL			
PRENDAS DE VESTIR NO ESPECIFICADAS EN OTRA PARTIDA (NEP)			
SUBTOTAL			

410- SERVICIOS MEDICOS Y CONSERVACION DE LA SALUD

En los últimos tres meses de ¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?:

USO DE LA OFICINA			VALOR		CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	DESCRIPCION	VALOR AL CONTADO DE LA COMPRA		COMPRAS AL CREDITO	
CODIGO	CANTIDAD	1. Cont. 2. Cred.	g.	g.			(4)	(5)	PRIMA	NO DE ABONOS
31-38	37-44	45-52	53-60		(3)	(2)	(4)	(5)	(6)	(8)
APARATOS Y EQUIPOS TERAPEUTICOS (incluye reparación)										
5201										
520101	000									
520108	000									
520111	000									
520118	000									
	000									
	000									
	000									
	000									
	000									
	000									
520199										
SUBTOTAL										
SEGUROS PERSONALES CONTRA ACCIDENTES Y ENFERMEDADES (Cuando no se le deducan del sueldo)										
5501										
550101	000									
550102	000									
550104	000									
550105	000									
550106	000									
	000									
	000									
	000									
550199										
SUBTOTAL										
COMPRAS AL CREDITO										

CONCEPTO			MONTO TOTAL PAGADO . g.		OBSERVACIONES	
ABONOS o primas pagados el último mes de por las compras de estos artículos realizadas						
en los últimos tres meses de g.						
ABONOS pagados el último mes de por las compras de estos artículos realizadas						
antes del mes de						

GASTOS SEMESTRALES

412- MUEBLES, ACCESORIOS, ENSERES DOMESTICOS Y CUIDADOS DEL HOGAR

En los últimos seis meses de

¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?

USO DE LA OFICINA				ARTICULOS COMPRADOS				DESCRIPCION		CANTIDAD COMPRADA Y UNIDAD DE MEDIDA		VALOR AL CONTADO DE LA COMPRA		COMPRAS AL CREDITO		Nº DE ABONOS		
CODIGO	CANTIDAD	VALOR	1. Cont. 2. Cred.	1. Nuev. 2. Usad.	1. Cont. 2. Cred.	1. Nuev. 2. Usad.	1. Cont. 2. Cred.	1. Nuev. 2. Usad.	1. Cont. 2. Cred.	1. Nuev. 2. Usad.	1. Cont. 2. Cred.	1. Nuev. 2. Usad.	1. Cont. 2. Cred.	1. Nuev. 2. Usad.	1. Cont. 2. Cred.	1. Nuev. 2. Usad.	1. Cont. 2. Cred.	1. Nuev. 2. Usad.
31.38	37.44	45.52	53.60	61.08														
4101																		
410101																		
410104																		
410106																		
410108																		
410109																		
410111																		
410112																		
410116																		
410119																		
410120																		
410121																		
410122																		
410126																		
410130																		
410143																		
410199																		
SUBTOTAL																		

COMPRAS AL CREDITO

CONCEPTO		CODIGO	USO OF.	MONTO TOTAL PAGADO . g.	OBSERVACIONES
ABONOS o primas pagadas el último mes de					
últimos seis meses de					
ABONOS pagados el último mes de					
antes del mes de					

412. MUEBLES, ACCESORIOS, ENSERES DOMESTICOS Y CUIDADOS DEL HOGAR (Continuación)

En los últimos seis meses de ¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?

USO DE LA OFICINA													
CODIGO	CANTIDAD	VALOR g	1. Cont. 1. Nuev		DESCRIPCION	1. Nuev 2. Usad		CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CONTADO DE LA COMPRA g	COMPRAS AL CREDITO		Nº DE ABONOS	
			2. Cred	2. Usad		PRIMA	VALOR DEL ABONO g						
31-36	37.44	46.92	53.80	51.68	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4301					APARATOS DOMESTICOS Y ACCESORIOS								
430104	000				Batidora								
430107	000				Capillo eléctrico								
430111	000				Cocina de leña								
430112	000				Cocina eléctrica								
430123	000				Lavadora de ropa								
430124	000				Licudora								
430125	000				Máquina para coser eléctrica								
430129	000				Percolador								
430130	000				Plancha eléctrica								
430132	000				Plantilla eléctrica								
430133	000				Plantilla de gas								
430136	000				Refrigeradora								
	000												
	000												
	000												
	000												
	000												
	000												
	000												
430199	000				SUBTOTAL								

COMPRAS AL CREDITO

CONCEPTO		CODIGO	USO OF	MONTO TOTAL PAGADO g	OBSERVACIONES
ABONOS o primas pagadas el último mes de por las compras de estos artículos		430197	1		
realizadas en los últimos seis meses de a					
ABONOS pagados el último mes de por las compras de estos artículos		430198	1		
realizadas antes del mes de					

412. MUEBLES, ACCESORIOS, ENSERES DOMESTICOS Y CUIDADOS DEL HOGAR (Continuación)

En los últimos seis meses de

¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?

USO DE LA OFICINA				ARTICULOS COMPRADOS		DESCRIPCION	CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CONTADO DE LA COMPRA	COMPRAS AL CREDITO	
CODIGO	CANTIDAD	VALOR	1 Cont. 2 Cred.	(1)	(2)				PRIMA	VALOR DEL ABONO
31-38	37.44	45.52	53.80						(6)	(7)
4401						CRISTALERIA, VAJILLA, UTENSILIOS DEL HOGAR (Incluye reparaciones)				
440114	000					Cafetera				
440125	000					Cuchara de metal				
440131	000					Cuchillo de cocina				
440152	000					Juego de taza y plato				
440160	000					Olla de metal				
440181	000					Olla de presión				
440187	000					Pilex				
440188	000					Plato de loza o vidrio				
440178	000					Sartén				
440184	000					Tenedor de metal (metal)				
440186	000					Termo				
440191	000					Vajilla de loza				
440192	000					Vajilla de plástico				
440196	000					Vaso de vidrio				
	000									
	000									
	000									
	000									
	000									
	000									
	000									
440199						SUBTOTAL				

COMPRAS AL CREDITO

CONCEPTO		CODIGO	USO OF	MONTO TOTAL PAGADO	OBSERVACIONES
ABONOS o primas pagadas el último mes de	realizadas en los últimos seis meses de				
		440197	1		
ABONOS pagados el último mes de	realizadas antes del mes de	440198	1		

412 MUEBLES, ACCESORIOS, ENSERES DOMESTICOS Y CUIDADOS DEL HOGAR (Continuacion)

En los últimos seis meses de

¿CUSTEO O ALGUN MIEMBRO DEL HOGAR COMPRO?

USO DE LA OFICINA			ARTICULOS COMPRADOS		DESCRIPCION	CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CONTADO DE LA COMPRA		CUMPLIAS AL CREDITO		Nº DE ABONOS
CODIGO	CANTIDAD	VALOR	(1)	(2)			(3)	(4)	1 Cont 2 Cred	PRIMA	
31.25	37.44	45.52							(b)	(c)	(d)
4201					TEJIDOS PARA EL HOGAR Y OTROS ACCESORIOS						
420103					Almohada						
420108					Cubija						
420109					Cupon						
420110					Culcha						
420112					Cortina de plastico						
420113					Cortina de tela						
420118					Flors naturales y plantas						
420120					Funda						
420124					Mueble						
420125					Mueble						
420126					Mantel de tela						
420127					Mantel plástico						
420130					Palo						
420133					Sábana						
420199					SUBTOTAL						

COMPRAS AL CREDITO

CONCEPTO		CODIGO	USO OF	MONTO TOTAL PAGADO: ₡	OBSERVACIONES
ABONOS o primas pagadas el último mes de realizadas en los últimos seis meses de		420107	1		
ABONOS pagados el último mes de realizados antes del mes de		420108	1		

412- MUEBLES, ACCESORIOS, ENSERES DOMESTICOS Y CUIDADOS DEL HOGAR (Continuación)

En los últimos seis meses de

¿CUANTO GASTO USTED O ALGUN MIEMBRO DE SU HOGAR POR CONCEPTO DE:

USO DE LA OFICINA			CONCEPTO	CANTIDAD Y UNIDAD DE MEDIDA	VALOR
CODIGO	CANTIDAD	VALOR	(1)	(2)	(3)
31-36	37-44	45-52			
4102			REPARACION DE MUEBLES Y ACCESORIOS FIJOS		
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
410299			SUBTOTAL		
4302			REPARACION DE APARATOS DOMESTICOS		
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
430299			SUBTOTAL		
4202			REPARACION DE TEJIDOS PARA EL HOGAR		
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
420299			SUBTOTAL		

413 TRANSPORTE Y COMUNICACIONES

En los últimos seis meses de

CUSTEO O ALGUN MILIBRO DEL HOJAS CUMPLIDO

USO DE LA OFICINA				CUMPLIDAS AL CREDITO			
CODIGO	CANTIDAD	VALOR	1 Cont 2 Cred	1 Nueva 2 Usada	CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CREDITO DE LA CUMPLIDA	1 Cont 2 Cred
3136	37.44	45.92	53.50	51.94			
6101							
610101	000						
610102	000						
610103	000						
610104	000						
610105	000						
610199	000						
6301							
630103	000						
630104	000						
630105	000						
630199	000						
SUBTOTAL				SUBTOTAL			
ADQUISICION DE VEHICULOS (para uso del hogar)				SERVICIOS DE TRANSPORTE POR VIAJES LARGOS (Por motivos de estudio o turismo)			
Automóvil (nuevos, usados)				Viaje en autobús			
Bicicleta				Viaje en automóvil			
Motocicleta				Viaje en avión			
SUBTOTAL				SUBTOTAL			

C O M P R A S A L C R E D I T O

CONCEPTO		CODIGO	USO OF	MONTO TOTAL PAGADO	OBSERVACIONES
ABONOS o pomas pagados el último mes de		610197	1		por las compras de estos artículos realizados
en los últimos seis meses de					
ABONOS pagados el último mes de		610198	1		por las compras de estos artículos realizados
en los últimos seis meses de					

En los últimos seis meses de

¿CUANTO GASTO USTED O ALGUN MIEMBRO DEL HOGAR POR CONCEPTO DE

[illegible]

414- EDUCACION, CULTURA Y ESPARCIMIENTO

En los últimos seis meses de

¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?

USO DE LA OFICINA				1. Cont. 1. Nuevo		2. Cont. 2. Usado	
CODIGO	CANTIDAD	VALOR		1. Cont.	2. Cont.	1. Nuevo	2. Usado
31-36	37.44	45.52		53.60	61.68		
7101							
710105	000						
710106	000						
710108	000						
710109	000						
710110	000						
710111	000						
710112	000						
	000						
	000						
	000						
	000						
	000						
	000						
710199							
7104							
710409	000						
710410	000						
710411	000						
	000						
	000						
	000						
710499	000						

ARTICULOS COMPRADOS		DESCRIPCION		1. Nuevo 2. Usado		CANTIDAD COMPRADA Y UNIDAD DE MEDIDA		VALOR AL CONTADO DE LA COMPRA		1. Nuevo 2. Usado		PRIMA		COMPRAS AL CREDITO		VALOR DEL ABONO C		Nº DE ABONOS	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
EQUIPO Y ACCESORIOS (Incluye alquiler)																			
Equipo de sonido																			
Grabadora																			
Radio																			
Radio grabadora																			
Televisor de color																			
Televisor blanco y negro																			
Tocacasette																			
SUBTOTAL																			
EQUIPO DE RECREO, CULTURA Y ACCESORIOS (Incluye repuestos, reparaciones y alquiler)																			
Binoculo																			
Calculadora																			
Camara fotografica																			
SUBTOTAL																			

COMPRAS AL CREDITO

CONCEPTO		CODIGO		USO OF.		MONTO TOTAL PAGADO - \$		OBSERVACIONES	
ABONOS o primas pagadas el ultimo mes de									
realizadas en los últimos seis meses de									
ABONOS pagados el ultimo mes de									
realizadas antes del mes de									

414- EDUCACION, CULTURA Y ESPARCIMIENTO (Continuación)

En los últimos seis meses de a ¿CUANTO GASTO USTED O ALGUN MIEMBRO DEL HOGAR POR CONCEPTO DE

USO DE LA OFICINA			CONCEPTO	MATRICULA - ¢ -	¿Cuánto pagó por mensualidades en los últimos 6 meses?
CODIGO	CANTIDAD	VALOR - ¢ -	(1)	(2)	(3)
31-36	37-44	45-52			
7401			SERVICIOS DE ENSEÑANZA		
740101	1		Clase particular		
740102	1		Colegio universitario		
740103	1		Enseñanza especial		
740104	1		Escuela comercial		
740105	1		Instituciones parauniversitarias		
740106	1		Kinder garden		
740107	1		Preparatoria		
740108	1		Primaria		
740109	1		Secundaria		
740110	1		Universitaria		
	1				
	1				
	1				
	1				
	1				
	1				
	1				
	1				
	1				
	1				
	1				
	1				
	1				
	1				
	1				
740199			SUBTOTAL		

En los últimos seis meses de a ¿CUANTO GASTO USTED O ALGUN MIEMBRO DEL HOGAR POR CONCEPTO DE

USO DE LA OFICINA			CONCEPTO	VALOR - ¢ -
CODIGO	CANTIDAD	VALOR - ¢ -	(1)	(2)
31-36	37-44	45-52		
7402			OTROS GASTOS POR ENSEÑANZA	
740201	1		Alimentación para estudiantes	
740202	1		Alojamiento para estudiantes	
740203	1		Cuotas extraordinarias	
740204	1		Remesa de dinero para estudio	
	1			
	1			
	1			
	1			
	1			
	1			
	1			
	1			
	1			
	1			
	1			
	1			
740299			SUBTOTAL	

415- OTROS GASTOS

En los últimos seis meses de ¿USTED O ALGUN MIEMBRO DEL HOGAR COMPRO?

USO DE LA OFICINA				VALOR		1. Cont 2. Cred		COMPRAS AL CREDITO	
CODIGO	CANTIDAD							PRIMA	Nº DE ABONOS
								(6)	(7)
31-36	37.44			45.52					
8201									
820111	000								
820116	000								
	000								
	000								
820199									
8202									
820210	000								
	000								
	000								
820299									
8302									
	000								
	000								
	000								
830299									
8401									
	000								
	000								
	000								
	000								
840199									

ARTICULOS COMPRADOS		DESCRIPCION	CANTIDAD COMPRADA Y UNIDAD DE MEDIDA	VALOR AL CONTADO DE LA COMPRA	1. Cont 2. Cred	COMPRAS AL CREDITO	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ARTICULOS DE JOYERIA (Incluye confeccion y reparacion)							
	Anillos de matrimonio de oro						
	Brasalete de cobre						
SUBTOTAL							
OTROS ARTICULOS PERSONALES (Incluye reparacion)							
	Paraguas						
SUBTOTAL							
SERVICIOS DE HOTELERIA							
SUBTOTAL							
GIRAS TURISTICAS							
SUBTOTAL							

COMPRAS AL CREDITO

CONCEPTO		CODIGO	USO OF	MONTO TOTAL PAGADO	OBSERVACIONES
ABONOS a primas pagadas el ultimo mes de					
realizadas en los ultimos seis meses de					
ABONOS pagados el ultimo mes de		820197	1		
realizadas antes del mes de		820198	1		

415. OTROS GASTOS (Continuación)

En los últimos seis meses de

¿CUANTO GASTO USTED O ALGUN MIEMBRO DEL HOGAR POR CONCEPTO DE

USO DE LA OFICINA			ARTICULOS COMPRADOS	CANTIDAD Y UNIDAD DE MEDIDA	VALOR
CODIGO	CANTIDAD	VALOR	(1)	(2)	(3)
31-36	37-44	45-52			
8203			ARTICULOS Y SUMINISTROS DE ESCRITORIO		
820301	000		Almanaque, calendario		
820302	000		Artículos de dibujo		
820303	000		Cinta para máquina de escribir		
820304	000		Lápiz y lapicero		
820305	000		Pluma		
820306	000		Sello manual		
820307	000		Sujetador de papel		
820308	000		Tinta		
	000				
	000				
	000				
	000				
	000				
	000				
820399			SUBTOTAL		
8501			SERVICIOS JURIDICOS, FINANCIEROS Y OTROS (Excluyendo Negocios)		
850101	000		Servicio bancario		
850102	000		Servicio de asesoramiento (contable, etc.)		
850103	000		Servicio jurídico		
	000				
	000				
	000				
	000				
	000				
	000				
850199			SUBTOTAL		
8601			GASTOS DIVERSOS		
860101	000		Bautizo		
860105	000		Dinero, bienes perdidos o robados		
860107	000		Funeral y entierro		
860108	000		Guardería		
860109	000		Matrimonio		
860114	000		Regalos para fiestas, matrimonios, etc.		
860115	000		Rifas, apuestas, lotería, rascaditas, etc.		
860116	000		Servicio de fotocopiado		
	000				
	000				
	000				
	000				
	000				
	000				
	000				
	000				
860199			SUBTOTAL		

3 9 416- AUTOSUMINISTRO DE BIENES Y SERVICIOS NO ALIMENTICIOS

1 12

1 ¿Alguno de los miembros del hogar tiene establecimiento (o para la producción o venta de productos no alimenticios) por miembro (vestido, calzado, muebles, aparatos domésticos, medicinas, etc.)?

Si ☐ Pase a la pregunta 2 NO ☐ Pase a la sección 417

2

Teniendo en cuenta que los bienes y servicios no alimenticios adquiridos por el hogar, provenientes de establecimientos de alguno de sus miembros se conoce con el nombre de AUTOSUMINISTRO, entonces:

¿Durante los últimos seis meses de a se han autosuministrado (Leer cada grupo de bienes y servicios)	CODIGO	USO OFICINA	3 ¿Cuál fue el monto total de este auto-suministro? 45-52
TELAS Y PRENDAS DE VESTIR	210000	1	
CALZADO Y REPARACION DE CALZADO	220000	1	
MUEBLES Y EQUIPO DEL HOGAR (mesas, sillas, lámparas, etc.)	410000	1	
TEJIDOS PARA EL HOGAR Y OTROS ACCESORIOS (sábanas, paños, etc.)	420000	1	
APARATOS DOMESTICOS Y ACCESORIOS (licuadora, refrigeradora, etc.)	430000	1	
CRISTALERIA, VAJILLA Y ARTICULOS DE COCINA (platos, ollas, etc.)	440000	1	
PRODUCTOS MEDICINALES Y FARMACEUTICOS	510000	1	
SERVICIOS MEDICOS	530000	1	
SERVICIOS DE TRANSPORTE	630000	1	
OTROS BIENES Y SERVICIOS	800000	1	
TOTAL	990099		

417- AUTOCONSUMO DE LEÑA

PARA USO DE LA OFICINA			En los últimos seis meses de: a ¿Usted o algún miembro del hogar ha consumido leña proveniente de su finca o de otro lugar sin realizar ningún pago?	CANTIDAD Y UNIDAD DE MEDIDA	VALOR \$
CODIGO	CANTIDAD	VALOR			
31-38	37-44	45-52			
330104			Si ☐ No ☐		

418- ADQUISICION DE LEÑA

PARA USO DE LA OFICINA			En los últimos seis meses de: a ¿Usted o algún miembro de su hogar ha comprado leña?	CANTIDAD Y UNIDAD DE MEDIDA	VALOR \$
CODIGO	CANTIDAD	VALOR			
31-38	37-44	45-52			
330105			Si ☐ No ☐		

SEÑALE EL LUGAR (ES) DONDE EL HOGAR ACOSTUMBRA HACER LAS COMPRAS DE:

NOMBRE DEL ESTABLECIMIENTO	CLASE DE ESTABLECIMIENTO (Tienda, zapatería, librería, etc.)	DIRECCION DEL ESTABLECIMIENTO
TELAS Y PRENDAS DE VESTIR:		
CALZADO:		
COMBUSTIBLES PARA COCINAR O ALUMBRAR LA VIVIENDA		
ARTICULOS PARA EL CUIDADO Y MANTENIMIENTO DEL HOGAR		
MUEBLES Y ACCESORIOS, APARATOS Y UTENSILIOS DOMESTICOS Y TEJIDOS PARA EL HOGAR:		
MATERIALES DE CONSTRUCCION, HERRAMIENTAS Y OTROS MATERIALES DE FERRTERIA.		
PRODUCTOS MEDICINALES Y FARMACEUTICOS.		
APARATOS Y EQUIPOS TERAPEUTICOS		
ADQUISICION DE VEHICULOS, REPARACION Y MANTENIMIENTO DE VEHICULOS:		
EQUIPO ACCESORIOS Y ARTICULOS RECREATIVOS		

SEÑALE EL LUGAR (ES) DONDE EL HOGAR ACOSTUMBRA HACER LAS COMPRAS DE:

422

NOMBRE DEL
ESTABLECIMIENTO

CLASE DE ESTABLECIMIENTO
(Tienda, zapatería, librería, etc.)

DIRECCION DEL ESTABLECIMIENTO

SERVICIOS DE ESPARCIMIENTO:

LIBROS, REVISTAS Y ARTICULOS DE ENSEÑANZA.

ARTICULOS PERSONALES:

SERVICIOS DE CUIDADO PERSONAL:

ARTICULOS DE JOYERIA:

OBSERVACIONES:

500- INGRESOS DE LOS MIEMBROS DEL HOGAR

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR	27 28
ENTREVISTADORA, Transcribe: La rama de actividad anotada en la preg. 8 del cuestionario 1	
La rama de actividad anotada en la preg. 12 del cuestionario 1	
La categoría ocupacional anotada en la preg. 13 del cuestionario 1	

SI ES ASALARIADO: Pase a Ingresos por Trabajo Asalariado (Sección 501)
 SI ES CUENTA PROPIA O PATRONO (excluido el productor agropecuario): Pase a Ingresos por Trabajo Independiente (Sección 502)
 SI ES CUENTA PROPIA O PATRONO y la rama de actividad es la agropecuaria, formule la siguiente pregunta:

¿Tiene finca o alquila tierra para producción agrícola, de ganado o de aves de corral?

Si ☒ Pase al Cuestionario 5 Productor Agropecuario
 No ☐ Pase a Ingresos por Trabajo Independiente (sección 502)

SI ES TRABAJADOR SIN SUELDO: Pase a Ingresos por Transferencias (Sección 504)
 SI ES INACTIVO: Pase a Ingresos por Transferencias (Sección 504)

USO DE LA OFICINA			CLASE DE INGRESO				
CODIGO	Per. Pago	VALOR \$	Nº Preg.	RENTA PRIMARIA 501- INGRESO POR TRABAJO ASALARIADO	MONTO \$	Periodo Pago	OBSERVACIONES
31-36	37-44	45-52	1	¿Cuánto recibió por sueldo o salario bruto en el último periodo de pago?			
950101				¿Cuánto le rebajaron en el periodo por:			
950102			2	Enfermedad y maternidad			
950103			3	Invalidez, vejez y muerte			
950104			4	Banco Popular			
950105			5	Pensión alimenticia			
950106			6	Impuesto sobre la renta			
950107			7	Poliza de vida del I N S			
950108			8	Préstamos			
950109			9	Otras deducciones (Ej: Pensión)			
950110			10	TOTAL DEDUCCIONES <small>Especifique</small>			
950111			11	¿Cual fue la remuneración efectivamente recibida en ese periodo?			
950112	6		12	¿Recibió usted aguinaldo en los últimos 12 meses? SI ☐ NO ☒ <small>Pase a 13</small>			
				¿Cuánto recibió?		6	
			13	¿Recibe usted por su trabajo pagos en bienes o servicios? SI ☒ NO ☐ <small>Pase a 503</small>			
					CANTIDAD Y UNIDAD DE MEDIDA	VALOR \$	Frec. *
			14	1. Vivienda			
			15	2. Alimentos 1			
			16	2.			
			17	3. Ropa y calzado 1.			
			18	2.			
950196			19	4. Servicios medicos			
950197			20	5. Transporte			
950198			21	6. Otro			

Periodo de pago ó Frecuencia: 1. Semanal/2. Quincenal/3. Mensual/4. Trimestral/5. Semestral/6. Anual

PASE A 503 INGRESO POR LA OCUPACION (ES) SECUNDARIA

OBSERVACIONES:

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR:

27 28

CODIGO	CLASE DE INGRESO
502	INGRESO POR TRABAJO INDEPENDIENTE
ENTREVISTADOR: Transcriba la ocupación o clase de trabajo anotado en la pregunta 11 del Cuestionario 1 _____ _____	
31 38	¿Cuál fue su GANANCIA NETA , es decir lo que le quedó después de deducir los gastos de la actividad en el último periodo (semana, quincena, mes, trimestre, semestre, año)?
9502 01	Periodo <u>37-44</u> \$ <u>45-52</u>
31 38	¿Cuál fue su GANANCIA NETA en los últimos 3 meses (suma lo ganado en todos los trabajos incluidos los camarones)?
9502 02	Uso Oficina <u>0, 1</u> <u>37-44</u> \$ <u>45-52</u>
31 38	En el último año de _____ a _____ ¿Cuál fue el mes y el monto de la GANANCIA NETA más alta?
9502 03	MES <u>37-44</u> \$ <u>45-52</u>
31 38	En el último año de _____ a _____ ¿Cuál fue el mes y monto de la GANANCIA NETA más baja?
9502 04	MES <u>37-44</u> \$ <u>45-52</u>
	¿Retira de su negocio bienes para el consumo de su hogar?
	Sí ☐ No ☐ Paso a 503
31 38	En el último mes _____ ¿Cuál fue el valor de los bienes retirados como: abarrotes, carne etc.?
9502 05	Uso Oficina <u>0, 1</u> <u>37-44</u> \$ <u>45-52</u>
31 38	En los últimos 6 meses de _____ a _____ ¿Cuál fue el valor de los bienes retirados como: muebles, prendas de vestir, etc.?
9502 06	Uso Oficina <u>0, 1, 6</u> <u>37-44</u> \$ <u>45-52</u>

CODIGO	CLASE DE INGRESO
503	INGRESO POR LA(S) OCUPACION(ES) SECUNDARIA(S)
31 38	¿Además de lo declarado anteriormente, desempeñó usted en el último mes otra ocupación, profesión, oficio o clase de trabajo?
	Sí ☐ No ☐ Paso a 504
31 38	¿Desempeña esa ocupación como asalariado o independiente?
9503 01	ASALARIADO ☐ 1 INDEPENDIENTE ☐ 2 37-44
31 38	¿A que se dedica el negocio, institución, o empresa en que desempeña esta ocupación secundaria?
	45 52
31 38	¿Cuánto fue el SALARIO NETO o la GANANCIA NETA en el último periodo de pago?
9503 02	Periodo <u>37-44</u> \$ <u>45-52</u>
PERIODO DE PAGO: 1. Semanal/ 2. Quincenal/3. Mensual/4. Trimestral/5. Semestral/ 6. Anual.	

CODIGO	CLASE DE INGRESO
504	TRANSFERENCIAS REGULARES RECIBIDAS (Monetarias)
31 38	En el mes de _____ ¿Cuánto recibió usted por concepto de:
31 38	Pensión por jubilación o invalidez?
9504 01	Uso Oficina <u>0, 1</u> <u>37-44</u> \$ <u>45-52</u>
31 38	Pensión alimenticia?
9504 02	Uso Oficina <u>0, 1</u> \$ _____
31 38	Ayuda de otros hogares
9504 03	Uso Oficina <u>0, 1</u> \$ _____
31 38	Becas para estudio?
9504 04	Uso Oficina <u>0, 1</u> \$ _____
31 38	Otras transferencias?
9504 05	Uso Oficina <u>0, 1</u> \$ _____
9504 99	Uso Oficina <u>0, 1</u> TOTAL \$ _____

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR:

27 28

9505 RENTA DE LA PROPIEDAD	
En los últimos 12 meses de _____ a _____ ¿Cuánto recibió usted por concepto de:	
31, 36 9505 01	Participación en sociedades de hecho? Uso Oficina <u>1 2</u> <u>37-44</u> <u>45-52</u>
9505 02	Dividendos? Uso Oficina <u>1 2</u>
9505 03	Intereses provenientes de bonos, certificados a plazo, préstamos y otros valores? Uso Oficina <u>1 2</u>
9505 04	Intereses provenientes de cuentas de ahorro? Uso Oficina <u>1 2</u>
9505 05	Alquiler de casas, edificios y otros activos fijos? Uso Oficina <u>1 2</u>
9505 06	Alquiler de tierras en efectivo? Uso Oficina <u>1 2</u>
9505 07	Alquiler de tierras en especie (productos o servicios)? Uso Oficina <u>1 2</u>
9505 08	Alquiler de marcas, patentes, derechos de autor etc.? Uso Oficina <u>1 2</u>
9505 09	Otros ingresos de la propiedad? Uso Oficina <u>1 2</u>
9505 10	¿Es usted socio de una cooperativa de producción? Sí ☐ No ☐ Pase a 506
9505 10	¿Cuánto recibió por su participación en el "beneficio" de la cooperativa? Uso Oficina <u>1 2</u>
9505 99	Uso Oficina <u>1 2</u> TOTAL <u>45-52</u>

506 OTROS INGRESOS	
En los últimos 6 meses de _____ a _____ ¿Cuánto recibió usted por concepto de:	
9506 01	Herencias? Uso Oficina <u>0 6</u>
9506 02	Seguros por accidente? Uso Oficina <u>0 6</u>

506 Continuación... OTROS INGRESOS	
Seguro de Vida?	
9506 03	Uso Oficina <u>0 6</u> <u>37-44</u> <u>45-52</u>
9506 04	Prestaciones (por despido o renuncia)? Uso Oficina <u>0 6</u>
9506 05	Juegos de azar (lotería, chances, rifas, etc.)? Uso Oficina <u>0 6</u>
9506 06	Otros ingresos ocasionales? Uso Oficina <u>0 6</u>
9506 99	Uso Oficina <u>0 6</u> TOTAL <u>45-52</u>

600 TRANSACCIONES FINANCIERAS Y GASTOS NO DE CONSUMO

TRANSACCIONES FINANCIERAS	
601 ENTRADAS DE DINERO	
En los últimos 3 meses de _____ a _____	
9601 01	¿Retiró dinero de su cuenta de ahorro o depósitos a plazo del banco u otras entidades financieras para efectuar gastos del hogar? Sí ☐ No ☐ ¿Cuánto retiró? Uso Oficina <u>0 3</u>
9601 02	¿Recibió dinero en calidad de préstamo? Sí ☐ No ☐ ¿Cuánto recibió? Uso Oficina <u>0 3</u>
9601 03	¿Recibió dinero por préstamos otorgados por usted? Sí ☐ No ☐ ¿Cuánto recibió? Uso Oficina <u>0 3</u>
9601 04	¿Efectuó ventas de bonos, acciones u otros valores similares? Sí ☐ No ☐ ¿Cuánto recibió por la venta? Uso Oficina <u>0 3</u>
En los últimos 12 meses de _____ a _____	
9601 05	¿Recibió dinero por la venta de viviendas, terrenos, muebles, automotores, maquinaria y equipo, etc.? Sí ☐ No ☐ Pase a 602
9601 05	¿Cuánto recibió por la venta de viviendas y terrenos? Uso Oficina <u>1 2</u>
9601 06	¿Cuánto recibió por la venta de muebles, autos, maquinaria etc.? Uso Oficina <u>1 2</u>

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR :

27 78

602 SALIDAS DE DINERO	
En los últimos 3 meses de a	
9602 01	¿Efectuó ahorros o depósitos a plazo en bancos u otras entidades financieras? Si ☐ No ☐ ¿Cuánto ahorro? Uso Oficina <u>0 3</u> <u>17.44</u> <u>45.52</u>
9602 02	¿Efectuó compras de bonos, acciones u otros valores similares? Si ☐ No ☐ ¿Cuánto compró? Uso Oficina <u>0 3</u> <u>17.44</u>
9602 03	¿Efectuó pagos por cuotas de ahorro y préstamo o clubes de compra? Si ☐ No ☐ ¿Cuánto pagó? Uso Oficina <u>0 3</u> <u>17.44</u>
9602 04	¿Otorgó usted algún préstamo de dinero? Si ☐ No ☐ ¿Cuánto prestó? Uso Oficina <u>0 3</u> <u>17.44</u>
En los últimos 6 meses de a	
	¿Efectuó pagos por préstamos recibidos por usted? Si ☐ No ☐ Paso a 8A
9602 05	¿Cuánto pagó por el capital? Uso Oficina <u>0 6</u> <u>17.44</u>
9602 06	¿Cuánto pagó por intereses? Uso Oficina <u>0 6</u> <u>17.44</u>
9602 07	¿Cuánto fue el monto total pagado incluyendo capital e intereses? Uso Oficina <u>0 6</u> <u>17.44</u>
En los últimos 12 meses de a	
8 A	¿Realizó gastos por adquisición o ampliación de su vivienda? Si ☐ No ☐ Paso a 10A
8 B	¿El gasto fue al contado o al crédito? CONTADO ☐ CREDITO ☐
9602 08	¿Cuál es el valor total de contado? Uso Oficina <u>1 2</u> <u>17.44</u>
SOLO SI MARCO CREDITO	
9602 09	¿Cuál es el valor pagado en los últimos 12 meses? Uso Oficina <u>1 2</u> <u>17.44</u>
10 A	¿Realizó gastos por adquisición de terreno? Si ☐ No ☐ Paso a 12A
10 B	¿El gasto fue al contado o al crédito? CONTADO ☐ CREDITO ☐

602 Continuación SALIDAS DE DINERO	
9602 10	¿Cuál es el valor total de contado? Uso Oficina <u>1 2</u> <u>17.44</u> <u>45.52</u>
SOLO SI MARCO CREDITO	
9602 11	¿Cuál es el valor total pagado en los últimos 12 meses? Uso Oficina <u>1 2</u> <u>17.44</u>
12 A	¿Realizó gastos por la compra de bienes tales como: maquinaria y equipo, máquina de tejer, muebles, etc., para uso en el taller, negocio o finca? Si ☐ No ☐ Paso a 603
12 B	¿El gasto fue al contado o al crédito? CONTADO ☐ CREDITO ☐
9602 12	¿Cuál es el valor total de contado? Uso Oficina <u>1 2</u> <u>17.44</u>
SOLO SI MARCO CREDITO	
9602 13	¿Cuál es el valor total pagado en los últimos 12 meses? Uso Oficina <u>1 2</u> <u>17.44</u>

603 GASTOS NO DE CONSUMO	
En los últimos 12 meses de a	
¿Cuánto pagó por concepto de:	
9603 01	Impuesto territorial? Uso Oficina <u>1 2</u> <u>17.44</u>
9603 02	Impuesto sobre la renta? (Si NO se le deduce del sueldo) Uso Oficina <u>1 2</u> <u>17.44</u>
9603 03	Otros impuestos directos (Ej: Impuesto al ruedo, al traspaso de bienes inmuebles) Uso Oficina <u>1 2</u> <u>17.44</u>
En el mes de	
9603 04	¿Dió usted dinero a otro hogar o institución sin fines de lucro por concepto de pensión alimenticia, ayuda a parientes, regalos, donaciones u otro? Si ☐ No ☐ ¿Cuál fue el monto total? Uso Oficina <u>0 1</u> <u>17.44</u>
9603 05	¿Efectuó pagos de cuotas a asociaciones privadas sin fines de lucro (Sindicatos, Asoc. Prof., etc.)? Si ☐ No ☐ Uso Oficina <u>0 1</u> <u>17.44</u>
9603 06	¿Realizó gastos por mantenimiento y reparación de bienes dados en alquiler? Si ☐ No ☐ ¿Cuánto gastó? Uso Oficina <u>0 1</u> <u>17.44</u>
9603 07	¿Efectuó pagos por gastos como tasas, timbres, embargos, etc.? Si ☐ No ☐ ¿Cuánto pagó? Uso Oficina <u>0 1</u> <u>17.44</u>
9603 99	Uso Oficina <u>0 1</u> <u>17.44</u> TOTAL <u>17.44</u>

1 0
1 2

500- INGRESOS DE LOS MIEMBROS DEL HOGAR

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR	27 28
ENTREVISTADORA, Transcriba: La condición de actividad anotada en la preg. 8 del cuestionario 1	
La rama de actividad anotada en la preg. 12 del cuestionario 1	
La categoría ocupacional anotada en la preg. 13 del cuestionario 1	

SI ES ASALARIADO: Pase a Ingresos por Trabajo Asalariado (Sección 501)

SI ES CUENTA PROPIA O PATRONO: (excluido el productor agropecuario): Pase a Ingresos por Trabajo Independiente (Sección 502)

SI ES CUENTA PROPIA O PATRONO y la rama de actividad es la agropecuaria, formule la siguiente pregunta:

¿Tiene finca o alquila tierra para producción agrícola, de ganado o de aves de corral?

Sí: ☐

Pase al Cuestionario 5- Productor Agropecuario

No: ☐

Pase a Ingresos por Trabajo Independiente (sección 502)

SI ES TRABAJADOR SIN SUELDO: Pase a Ingresos por Transferencias (Sección 504)

SI ES INACTIVO: Pase a Ingresos por Transferencias (Sección 504)

USO DE LA OFICINA

CODIGO	Per. Pago	VALOR \$
31-36	37-44	45-52
950101		
950102		
950103		
950104		
950105		
950106		
950107		
950108		
950109		
950110		
950111		
950112	6	
950196		
950197		
950198		

CLASE DE INGRESO

Nº Preg.	RENTA PRIMARIA 501 INGRESO POR TRABAJO ASALARIADO	MONTO \$	Periodo Pago	OBSERVACIONES
1	¿Cuánto recibió por sueldo o salario bruto en el último período de pago?			
	¿Cuánto le rebajaron en el período por:			
2	Enfermedad y maternidad			
3	Invalidez, vejez y muerte			
4	Banco Popular			
5	Pensión alimenticia			
6	Impuesto sobre la renta			
7	Póliza de vida del I.N.S.			
8	Préstamos			
9	Otras deducciones (Ej. Pensión)			
10	TOTAL DEDUCCIONES Especifique			
11	¿Cuál fue la remuneración efectivamente recibida en ese período?			
12	¿Recibió usted aguinaldo en los últimos 12 meses? SI ☐ NO ☐ Pase a 13			
	¿Cuánto recibió?		6	
13	¿Recibe usted por su trabajo pagos en bienes o servicios? SI ☐ NO ☐ Pase a 503			
14	1. Vivienda	CANTIDAD Y UNIDAD DE MEDIDA	VALOR \$	Frec. *
15	2. Alimentos 1.			
16	2.			
17	3. Ropa y calzado 1.			
18	2.			
19	4. Servicios médicos			
20	5. Transporte			
21	6. Otro			

Periodo de pago ó Frecuencia:

1. Semanal/2. Quincenal/3. Mensual/4. Trimestral/5. Semestral/6. Anual

PASE A 503 INGRESO POR LA ACTIVIDAD OCUPACIONAL SECUNDARIA

OBSERVACIONES:

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR:

27 28

CODIGO	CLASE DE INGRESO
502	INGRESO POR TRABAJO INDEPENDIENTE
ENTREVISTADOR: Transcriba la ocupación o clase de trabajo anotado en la pregunta 11 del Cuestionario 1 _____ _____	
31 36	¿Cuál fue su GANANCIA NETA , es decir lo que le quedó después de reducir los gastos de la actividad en el último período (semana, quincena, mes, trimestre, semestre, año) Período <u>37-44</u> \$ <u>45-52</u>
9502 01	
31 36	¿Cuál fue su GANANCIA NETA en los últimos 3 meses (suma lo ganado en todos los trabajos incluidos los camarones)? Uso Oficina <u>0 3</u> <u>37-44</u> \$ <u>45-52</u>
9502 02	
31 36	En el último año de _____ a _____ ¿Cuál fue el mes y el monto de la GANANCIA NETA más alta? MES <u>37-44</u> \$ <u>45-52</u>
9502 03	
31 36	En el último año de _____ a _____ ¿Cuál fue el mes y monto de la GANANCIA NETA más baja? MES <u>37-44</u> \$ <u>45-52</u>
9502 04	
	¿Retira de su negocio bienes para el consumo de su hogar? Si ☐ No ☐ Pase a 503
31 36	En el último mes _____ a _____ ¿Cuál fue el valor de los bienes retirados como: abarrotes, carne etc.? Uso Oficina <u>0 1</u> <u>37-44</u> \$ <u>45-52</u>
9502 05	
31 36	En los últimos 6 meses de _____ a _____ ¿Cuál fue el valor de los bienes retirados como: muebles, prendas de vestir, etc.? Uso Oficina <u>0 5</u> <u>37-44</u> \$ <u>45-52</u>
9502 06	

CODIGO	CLASE DE INGRESO
503	INGRESO POR TRABAJO OCUPACIONES SECUNDARIAS
31 36	¿Además de lo declarado anteriormente, desempeñó usted en el último mes otra ocupación, profesión, oficio o clase de trabajo? Si ☐ No ☐ Pase a 504
9503 01	¿Desempeña esa ocupación como asalariado o independiente? ASALARIADO ☐ 1 INDEPENDIENTE ☐ 2 <u>37-44</u>
31 36	¿A qué se dedica el negocio, institución, o empresa en que desempeña esta ocupación secundaria? _____ _____
9503 02	¿Cuánto fue el SALARIO NETO o la GANANCIA NETA en el último período de pago? Período <u>37-44</u> \$ <u>45-52</u>
PERIODO DE PAGO: 1 Semanal/ 2. Quincenal/3. Mensual/4. Trimestral/5. Semestral/ 6 Anual	

CODIGO	CLASE DE INGRESO
504	TRANSFERENCIAS REGULARES RECIBIDAS (MORCEDES)
31 36	En el mes de _____ ¿Cuánto recibió usted por concepto de: Pensión por jubilación o invalidez? Uso Oficina <u>0 1</u> <u>37-44</u> \$ <u>45-52</u>
9504 01	
31 36	Pensión alimenticia? Uso Oficina <u>0 1</u> \$ _____
9504 02	
31 36	Ayuda de otros hogares Uso Oficina <u>0 1</u> \$ _____
9504 03	
31 36	Becas para estudio? Uso Oficina <u>0 1</u> \$ _____
9504 04	
31 36	Otras transferencias? Uso Oficina <u>0 1</u> \$ _____
9504 05	
31 36	Uso Oficina <u>0 1</u> TOTAL \$ _____
9504 99	

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR:

27 28

505 RENTA DE LA PROPIEDAD	
En los últimos 12 meses de a	
¿Cuánto recibio usted por concepto de:	
31 36	Participación en sociedades de hecho?
9505 01	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
	Dividendos?
9505 02	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
	Intereses provenientes de bonos, certificados a plazo, préstamos y otros valores?
9505 03	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
	Intereses provenientes de cuentas de ahorro?
9505 04	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
	Alquiler de casas, edificios y otros activos fijos?
9505 05	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
	Alquiler de tierras en efectivo?
9505 06	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
	Alquiler de tierras en especie (productos o servicios)?
9505 07	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
	Alquiler de marcas, patentes, derechos de autor etc.?
9505 08	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
	Otros ingresos de la propiedad?
9505 09	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
	¿Es usted socio de una cooperativa de producción?
	Si ☐ No ☐ Paso a 506
	¿Cuánto recibio por su participación en el "beneficio" de la cooperativa?
9505 10	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
9505 99	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u> TOTAL

506 OTROS INGRESOS	
En los últimos 6 meses de a	
¿Cuánto recibio usted por concepto de:	
9506 01	Herencias?
	Uso Oficina <u>0 6</u> <u>37 44</u> <u>45 52</u>
9506 02	Seguros por accidente?
	Uso Oficina <u>0 6</u> <u>37 44</u> <u>45 52</u>

506 Continuación... OTROS INGRESOS	
Seguro de Vida?	
9506 03	Uso Oficina <u>0 6</u> <u>37 44</u> <u>45 52</u>
Prestaciones (por despido o renuncia)?	
9506 04	Uso Oficina <u>0 6</u> <u>37 44</u> <u>45 52</u>
Juegos de azar (lotería, chances, rifas, etc.)?	
9506 05	Uso Oficina <u>0 6</u> <u>37 44</u> <u>45 52</u>
Otros ingresos ocasionales?	
9506 06	Uso Oficina <u>0 6</u> <u>37 44</u> <u>45 52</u>
9506 99	Uso Oficina <u>0 6</u> <u>37 44</u> <u>45 52</u> TOTAL

600 TRANSACCIONES FINANCIERAS Y GASTOS NO DE CONSUMO

TRANSACCIONES FINANCIERAS	
601 ENTRADAS DE DINERO	
En los últimos 3 meses de a	
9601 01	¿Retiró dinero de su cuenta de ahorro o depósitos a plazo del banco u otras entidades financieras para efectuar gastos del hogar?
	Si ☐ No ☐
	¿Cuánto retiró?
	Uso Oficina <u>0 3</u> <u>37 44</u> <u>45 52</u>
9601 02	¿Recibió dinero en calidad de préstamo?
	Si ☐ No ☐
	¿Cuánto recibió?
	Uso Oficina <u>0 3</u> <u>37 44</u> <u>45 52</u>
9601 03	¿Recibió dinero por préstamos otorgados por usted?
	Si ☐ No ☐
	¿Cuánto recibió?
	Uso Oficina <u>0 3</u> <u>37 44</u> <u>45 52</u>
9601 04	¿Efectuó ventas de bonos, acciones u otros valores similares?
	Si ☐ No ☐
	¿Cuánto recibió por la venta?
	Uso Oficina <u>0 3</u> <u>37 44</u> <u>45 52</u>
En los últimos 12 meses de a	
9601 05	¿Recibió dinero por la venta de viviendas, terrenos, muebles, automoviles, maquinaria y equipo, etc.?
	Si ☐ No ☐ Paso a 602
	¿Cuánto recibió por la venta de viviendas y terrenos?
	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>
9601 06	¿Cuánto recibio por la venta de muebles, autos, maquinaria etc.?
	Uso Oficina <u>1 2</u> <u>37 44</u> <u>45 52</u>

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR :

27 28

602 SALIDAS DE DINERO	
En los últimos 2 meses de	
11 16	«Efectuó ahorros o depósitos a plazo en bancos u otras entidades financieras» Si No «Cuanto ahorró?» Uso Oficina 0 3 \$ 45-52
3602 01	
«Efectuó compras de bonos, acciones u otros valores similares?» Si No «Cuanto compró?» Uso Oficina 0 3 \$	
3602 32	
«Efectuó pagos por cuotas de ahorro y préstamo o clubes de compra?» Si No «Cuanto pagó?» Uso Oficina 0 3 \$	
9602 03	
«Otorgo usted algún préstamo de dinero?» Si No «Cuánto prestó?» Uso Oficina 0 3 \$	
9602 04	
En los últimos 6 meses de	
	«Efectuó pagos por préstamos recibidos por usted?» Si No Paso a 8A
9602 05	«Cuánto pago por el capital?» Uso Oficina 0 8 \$
9602 06	«Cuánto pago por intereses?» Uso Oficina 0 8 \$
9602 07	«Cuánto fue el monto total pagado incluyendo capital e intereses?» Uso Oficina 0 8 \$
En los últimos 12 meses de	
8 A	«Realizó gastos por adquisición o ampliación de su vivienda?» Si No Paso a 10A
8 B	«El gasto fue al contado o al crédito?» CONTADO CREDITO «Cuál es el valor total de contado?» Uso Oficina 1 2 \$
9602 08	
SOLO SI MARCO CREDITO	
9602 09	«Cuál es el valor pagado en los últimos 12 meses?» Uso Oficina 1 2 \$
10 A	«Realizó gastos por adquisición de terreno?» Si No Paso a 12A
10 B	«El gasto fue al contado o al crédito?» CONTADO CREDITO

602 Continuation SALIDAS DE DINERO	
11 16	«Cuál es el valor total de contado?» Uso Oficina 1 2 \$ 45-52
3602 10	
SOLO SI MARCO CREDITO	
3602 11	«Cuál es el valor total pagado en los últimos 12 meses?» Uso Oficina 1 2 \$
12 A	«Realizó gastos por la compra de bienes tales como: maquinaria y equipo, máquina de tejer, muebles, etc., para uso en el taller, negocio o finca?» Si No Paso a 603
12 B	«El gasto fue al contado o al crédito?» CONTADO CREDITO «Cuál es el valor total de contado?» Uso Oficina 1 2 \$
3602 12	
SOLO SI MARCO CREDITO	
3602 13	«Cuál es el valor total pagado en los últimos 12 meses?» Uso Oficina 1 2 \$

603 GASTOS NO DE CONSUMO	
En los últimos 12 meses de	
«Cuánto pagó por concepto de :	
9603 01	Impuesto territorial? Uso Oficina 1 2 \$
9603 02	Impuesto sobre la renta? (Si NO se le deduce del sueldo) Uso Oficina 1 2 \$
9603 03	Otros impuestos directos (Ej. Impuesto al ruedo, al traspaso de bienes inmuebles) Uso Oficina 1 2 \$
En el mes de	
9603 04	«Dió usted dinero a otro hogar o institución sin fines de lucro por concepto de pensión alimenticia, ayuda a parientes, regalos, donaciones u otro?» Si No «Cuál fue el monto total?» Uso Oficina 0 1 \$
9603 05	«Efectuó pagos de cuotas a asociaciones privadas sin fines de lucro (Sindicatos, Asoc. Prof., etc.)?» Si No Uso Oficina 0 1 \$
9603 06	«Realizó gastos por mantenimiento y reparación de bienes dados en alquiler?» Si No «Cuánto gastó?» Uso Oficina 0 1 \$
9603 07	«Efectuó pagos por gastos como tasas, timbres, embargos, etc.» Si No «Cuánto pagó?» Uso Oficina 0 1 \$
9603 99	Uso Oficina 0 1 TOTAL \$

500. INGRESOS DE LOS MIEMBROS DEL HOGAR

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR	27 28
ENTREVISTADORA. Transcriba: La condición de actividad anotada en la preg. 8 del cuestionario 1	
La rama de actividad anotada en la preg. 12 del cuestionario 1	
La categoría ocupacional anotada en la preg. 13 del cuestionario 1	

SI ES ASALARIADO: Pase a Ingresos por Trabajo Asalariado (Sección 501)
 SI ES CUENTA PROPIA O PATRONO (excluido el productor agropecuario): Pase a Ingresos por Trabajo Independiente (Sección 502)
 SI ES CUENTA PROPIA O PATRONO y la rama de actividad es la agropecuaria, formule la siguiente pregunta:

¿Tiene finca o alquila tierra para producción agrícola, de ganado o de aves de corral?

Si ☐ Pase al Cuestionario 5- Productor Agropecuario
 No ☐ Pase a Ingresos por Trabajo Independiente (sección 502)

SI ES TRABAJADOR SIN SUELDO: Pase a Ingresos por Transferencias (Sección 504)

SI ES INACTIVO: Pase a Ingresos por Transferencias (Sección 504)

USO DE LA OFICINA			CLASE DE INGRESO				
CODIGO	Per. Pago	VALOR \$.	Nº Preg.	RENDA PRIMARIA 501 INGRESO POR TRABAJO ASALARIADO	MONTO \$.	Periodo Pago	OBSERVACIONES
31-36	37-44	45-52	1	¿Cuánto recibió por sueldo o salario bruto en el último periodo de pago?			
950101				¿Cuánto le rebajaron en el periodo por:			
950102			2	Enfermedad y maternidad			
950103			3	Invalidez, vejez y muerte			
950104			4	Banco Popular			
950105			5	Pensión alimenticia			
950106			6	Impuesto sobre la renta			
950107			7	Póliza de vida del I.N.S.			
950108			8	Préstamos			
950109			9	Otras deducciones (Ej: Pensión)			
950110			10	TOTAL DEDUCCIONES Especifique			
950111			11	¿Cuál fue la remuneración efectivamente recibida en ese periodo?			
950112	6		12	¿Recibió usted aguinaldo en los últimos 12 meses? SI ☐ NO ☐ Pase a 13			
				¿Cuánto recibió?		6	
			13	¿Recibe usted por su trabajo pagos en bienes o servicios? SI ☐ NO ☐ Pase a 503			
			14	1. Vivienda	CANTIDAD Y UNIDAD DE MEDIDA	VALOR \$.	Frec. *
			15	2. Alimentos 1.			
			16	2.			
			17	3. Ropa y calzado 1.			
			18	2.			
950196			19	4. Servicios médicos			
950197			20	5. Transporte			
950198			21	6. Otro			

Periodo de pago ó Frecuencia: 1. Semanal/2. Quincenal/3. Mensual/4. Trimestral/5. Semestral/6. Anual

PASE A 503 INGRESO POR LA ACTIVIDAD OCUPACIONAL SECUNDARIA

OBSERVACIONES:

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR:

27 28

CODIGO	CLASE DE INGRESO
502	INGRESO POR TRABAJO INDEPENDIENTE
ENTREVISTADOR: Transcriba la ocupación o clase de trabajo anotado en la pregunta 11 del Cuestionario 1.	
9502 01	¿Cuál fue su GANANCIA NETA , es decir lo que le quedó después de deducir los gastos de la actividad en el último período (semana, quincena, mes, trimestre, semestre, año)? Período <u>37-44</u> \$ <u>45-52</u>
9502 02	¿Cuál fue su GANANCIA NETA en los últimos 3 meses (suma lo ganado en todos los trabajos incluidos los camarones)? Uso Oficina <u>0, 3</u> <u>37-44</u> \$ <u>45-52</u>
9502 03	En el último año de a ¿Cuál fue el mes y el monto de la GANANCIA NETA más alta? MES <u>37-44</u> \$ <u>45-52</u>
9502 04	En el último año de a ¿Cuál fue el mes y monto de la GANANCIA NETA más baja? MES <u>37-44</u> \$ <u>45-52</u>
	¿Retira de su negocio bienes para el consumo de su hogar? Si ☐ No ☐ Paso a 503
9502 05	En el último mes ¿Cuál fue el valor de los bienes retirados como: abarrotes, carne etc.? Uso Oficina <u>0, 1</u> <u>37-44</u> \$ <u>45-52</u>
9502 06	En los últimos 6 meses de a ¿Cuál fue el valor de los bienes retirados como: muebles, prendas de vestir, etc.? Uso Oficina <u>0, 6</u> <u>37-44</u> \$ <u>45-52</u>

CODIGO	CLASE DE INGRESO
503	INGRESO POR LA(S) OCUPACION(ES) SECUNDARIAS
9503 01	¿Además de lo declarado anteriormente, desempeñó usted en el último mes otra ocupación, profesión, oficio o clase de trabajo? Si ☐ No ☐ Paso a 504 ¿Desempeña esa ocupación como asalariado o independiente? ASALARIADO ☐ 1 INDEPENDIENTE ☐ 2 37-44 ¿A qué se dedica el negocio, institución, o empresa en que desempeña esta ocupación secundaria? <u>45</u> <u>52</u>
9503 02	¿Cuánto fue el SALARIO NETO o la GANANCIA NETA en el último período de pago? Período <u>37-44</u> \$ <u>45-52</u>
PERIODO DE PAGO: 1. Semanal/ 2. Quincenal/3. Mensual/4. Trimestral/5. Semestral/ 6. Anual.	

CODIGO	CLASE DE INGRESO
504	TRANSFERENCIAS REGULARES RECIBIDAS (MONEDAS)
En el mes de ¿Cuánto recibió usted por concepto de:	
9504 01	Pensión por jubilación o invalidez? Uso Oficina <u>0, 1</u> <u>37-44</u> \$ <u>45-52</u>
9504 02	Pensión alimenticia? Uso Oficina <u>0, 1</u> \$
9504 03	Ayuda de otros hogares Uso Oficina <u>0, 1</u> \$
9504 04	Becas para estudio? Uso Oficina <u>0, 1</u> \$
9504 05	Otras transferencias? Uso Oficina <u>0, 1</u> \$
9504 99	Uso Oficina <u>0, 1</u> TOTAL \$

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR:

77 78

505 RENTA DE LA PROPIEDAD	
En los últimos 12 meses de a	
¿Cuánto recibió usted por concepto de:	
31 36	Participación en sociedades de hecho?
9505 01	Uso Oficina <u>1 2</u> 37-44 <u>45-52</u>
	Dividendos?
9505 02	Uso Oficina <u>1 2</u>
	Intereses provenientes de bonos, certificados a plazo, préstamos y otros valores?
9505 03	Uso Oficina <u>1 2</u>
	Intereses provenientes de cuentas de ahorro?
9505 04	Uso Oficina <u>1 2</u>
	Alquiler de casas, edificios y otros activos fijos?
9505 05	Uso Oficina <u>1 2</u>
	Alquiler de tierras en efectivo?
9505 06	Uso Oficina <u>1 2</u>
	Alquiler de tierras en especie (productos o servicios)?
9505 07	Uso Oficina <u>1 2</u>
	Alquiler de marcas, patentes, derechos de autor etc.?
9505 08	Uso Oficina <u>1 2</u>
	Otros ingresos de la propiedad?
9505 09	Uso Oficina <u>1 2</u>
	¿Es usted socio de una cooperativa de producción?
	Sí..... No..... <small>→ Pase a 506</small>
	¿Cuánto recibió por su participación en el "beneficio" de la cooperativa?
9505 10	Uso Oficina <u>1 2</u>
9505 99	Uso Oficina <u>1 2</u> TOTAL <u></u>

506 OTROS INGRESOS	
En los últimos 6 meses de a	
¿Cuánto recibió usted por concepto de:	
9506 01	Herencias? Uso Oficina <u>0 6</u>
9506 02	Seguros por accidente? Uso Oficina <u>0 6</u>

506 Continuación... OTROS INGRESOS	
	Seguro de Vida?
9506 03	Uso Oficina <u>0 6</u> 37-44 <u>45-52</u>
	Prestaciones (por despido o renuncia)?
9506 04	Uso Oficina <u>0 6</u>
	Juegos de azar (lotería, chances, rifas, etc.)?
9506 05	Uso Oficina <u>0 6</u>
	Otros ingresos ocasionales?
9506 06	Uso Oficina <u>0 6</u>
9506 99	Uso Oficina <u>0 6</u> TOTAL <u></u>

600 TRANSACCIONES FINANCIERAS Y GASTOS NO DE CONSUMO

601 TRANSACCIONES FINANCIERAS	
ENTRADAS DE DINERO	
En los últimos 3 meses de a	
	¿Retiró dinero de su cuenta de ahorro o depósitos a plazo del banco u otras entidades financieras para efectuar gastos del hogar?
	Sí..... No.....
	¿Cuánto retiró?
9601 01	Uso Oficina <u>0 3</u>
	¿Recibió dinero en calidad de préstamo?
	Sí..... No.....
	¿Cuánto recibió?
9601 02	Uso Oficina <u>0 3</u>
	¿Recibió dinero por préstamos otorgados por usted?
	Sí..... No.....
	¿Cuánto recibió?
9601 03	Uso Oficina <u>0 3</u>
	¿Efectuó ventas de bonos, acciones u otros valores similares?
	Sí..... No.....
	¿Cuánto recibió por la venta?
9601 04	Uso Oficina <u>0 3</u>
En los últimos 12 meses de a	
	¿Recibió dinero por la venta de viviendas, terrenos, muebles, automóviles, maquinaria y equipo, etc.?
	Sí..... No..... <small>→ Pase a 602</small>
	¿Cuánto recibió por la venta de viviendas y terrenos?
9601 05	Uso Oficina <u>1 2</u>
	¿Cuánto recibió por la venta de muebles, autos, maquinaria etc.?
9601 06	Uso Oficina <u>1 2</u>

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR :

27 28

602 SALIDAS DE DINERO	
En los últimos 3 meses de	
31 36	¿Efectuó ahorros o depósitos a plazo en bancos u otras entidades financieras?
9602 01	Si ☐ No ☐ ¿Cuánto ahorró? Uso Oficina <u>0 3</u> <u>17-44</u> <u>45-52</u>
9602 02	¿Efectuó compras de bonos, acciones u otros valores similares? Si ☐ No ☐ ¿Cuánto compró? Uso Oficina <u>0 3</u> <u>17-44</u> <u>45-52</u>
9602 03	¿Efectuó pagos por cuotas de ahorro y préstamo o clubes de compra? Si ☐ No ☐ ¿Cuánto pagó? Uso Oficina <u>0 3</u> <u>17-44</u> <u>45-52</u>
9602 04	¿Otorgó usted algún préstamo de dinero? Si ☐ No ☐ ¿Cuánto prestó? Uso Oficina <u>0 3</u> <u>17-44</u> <u>45-52</u>
En los últimos 6 meses de	
	¿Efectuó pagos por préstamos recibidos por usted? Si ☐ No ☐ Paso a 8A
9602 05	¿Cuánto pagó por el capital? Uso Oficina <u>0 6</u> <u>17-44</u> <u>45-52</u>
9602 06	¿Cuánto pagó por intereses? Uso Oficina <u>0 6</u> <u>17-44</u> <u>45-52</u>
9602 07	¿Cuánto fue el monto total pagado incluyendo capital e intereses? Uso Oficina <u>0 6</u> <u>17-44</u> <u>45-52</u>
En los últimos 12 meses de	
8 A	¿Realizó gastos por adquisición o ampliación de su vivienda? Si ☐ No ☐ Paso a 10A
8 B	¿El gasto fue al contado o al crédito? CONTADO ☐ CREDITO ☐
9602 08	¿Cuál es el valor total de contado? Uso Oficina <u>1 2</u> <u>17-44</u> <u>45-52</u>
SOLO SI MARCO CREDITO	
9602 09	¿Cuál es el valor pagado en los últimos 12 meses? Uso Oficina <u>1 2</u> <u>17-44</u> <u>45-52</u>
10 A	¿Realizó gastos por adquisición de terreno? Si ☐ No ☐ Paso a 12A
10 B	¿El gasto fue al contado o al crédito? CONTADO ☐ CREDITO ☐

602 Continuación SALIDAS DE DINERO	
31 36	¿Cuál es el valor total de contado?
9602 10	Uso Oficina <u>1 2</u> <u>17-44</u> <u>45-52</u>
SOLO SI MARCO CREDITO	
9602 11	¿Cuál es el valor total pagado en los últimos 12 meses? Uso Oficina <u>1 2</u> <u>17-44</u> <u>45-52</u>
12 A	¿Realizó gastos por la compra de bienes tales como: maquinaria y equipo, máquina de tejer, muebles, etc., para uso en el taller, negocio o finca? Si ☐ No ☐ Paso a 603
12 B	¿El gasto fue al contado o al crédito? CONTADO ☐ CREDITO ☐
9602 12	¿Cuál es el valor total de contado? Uso Oficina <u>1 2</u> <u>17-44</u> <u>45-52</u>
SOLO SI MARCO CREDITO	
9602 13	¿Cuál es el valor total pagado en los últimos 12 meses? Uso Oficina <u>1 2</u> <u>17-44</u> <u>45-52</u>

603 GASTOS NO DE CONSUMO	
En los últimos 12 meses de	
¿Cuánto pagó por concepto de:	
9603 01	Impuesto territorial? Uso Oficina <u>1 2</u> <u>17-44</u> <u>45-52</u>
9603 02	Impuesto sobre la renta? (SI NO se le deduce del sueldo) Uso Oficina <u>1 2</u> <u>17-44</u> <u>45-52</u>
9603 03	Otros impuestos directos (E): Impuesto al ruedo, al traspaso de bienes inmuebles Uso Oficina <u>1 2</u> <u>17-44</u> <u>45-52</u>
En el mes de	
9603 04	¿Dio usted dinero a otro hogar o institución sin fines de lucro por concepto de pensión alimenticia, ayuda a parientes, regalos, donaciones u otro? Si ☐ No ☐ ¿Cuál fue el monto total? Uso Oficina <u>0 1</u> <u>17-44</u> <u>45-52</u>
9603 05	¿Efectuó pagos de cuotas a asociaciones privadas sin fines de lucro (Sindicatos, Asoc. Prof., etc.)? Si ☐ No ☐ ¿Cuánto gastó? Uso Oficina <u>0 1</u> <u>17-44</u> <u>45-52</u>
9603 06	¿Realizó gastos por mantenimiento y reparación de bienes dados en alquiler? Si ☐ No ☐ ¿Cuánto pagó? Uso Oficina <u>0 1</u> <u>17-44</u> <u>45-52</u>
9603 07	¿Efectuó pagos por gastos como tasas, timbres, embargos, etc.? Si ☐ No ☐ ¿Cuánto pagó? Uso Oficina <u>0 1</u> <u>17-44</u> <u>45-52</u>
9603 99	Uso Oficina <u>0 1</u> <u>17-44</u> <u>45-52</u> TOTAL <u>0 1</u> <u>17-44</u> <u>45-52</u>

1 0
12

500- INGRESOS DE LOS MIEMBROS DEL HOGAR

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR	27 28
ENTREVISTADORA, Transcriba: La condición de actividad anotada en la preg. 8 del cuestionario 1	
La rama de actividad anotada en la preg. 12 del cuestionario 1	
La categoría ocupacional anotada en la preg. 13 del cuestionario 1	

SI ES ASALARIADO: Pase a Ingresos por Trabajo Asalariado (Sección 501)

SI ES CUENTA PROPIA O PATRONO (excluido el productor agropecuario): Pase a Ingresos por Trabajo Independiente (Sección 502)

SI ES CUENTA PROPIA O PATRONO y la rama de actividad es la agropecuaria, formule la siguiente pregunta.

¿Tiene finca o alquila tierra para producción agrícola, de ganado o de aves de corral?

Si ☐ No ☐

Pase al Cuestionario 5- Productor Agropecuario

Pase a Ingresos por Trabajo Independiente (sección 502)

SI ES TRABAJADOR SIN SUELDO: Pase a Ingresos por Transferencias (Sección 504)

SI ES INACTIVO: Pase a Ingresos por Transferencias (Sección 504)

USO DE LA OFICINA			CLASE DE INGRESO				
CODIGO	Per. Pago	VALOR \$	Nº Preg.	RENTA PRIMARIA 501 INGRESO POR TRABAJO ASALARIADO	MONTO \$	Período Pago	OBSERVACIONES
31-36	37-44	45-52	1	¿Cuánto recibió por sueldo o salario bruto en el último período de pago?			
950101				¿Cuánto le rebajaron en el período por:			
950102			2	Enfermedad y maternidad			
950103			3	Invalidez, vejez y muerte			
950104			4	Banco Popular			
950105			5	Pensión alimenticia			
950106			6	Impuesto sobre la renta			
950107			7	Póliza de vida del I.N.S.			
950108			8	Préstamos			
950109			9	Otras deducciones (Ej: Pensión)			
950110			10	TOTAL DEDUCCIONES Especifique			
950111			11	¿Cuál fue la remuneración efectivamente recibida en ese período?			
950112	6		12	¿Recibió usted aguinaldo en los últimos 12 meses? Si ☐ NO ☐ Pase a 13			
				¿Cuánto recibió?		6	
			13	¿Recibe usted por su trabajo pagos en bienes o servicios? Si ☐ NO ☐ Pase a 503			
			14	1. Vivienda	CANTIDAD Y UNIDAD DE MEDIDA	VALOR \$	Frec. *
			15	2. Alimentos 1.			
			16	2.			
			17	3. Ropa y calzado 1.			
			18	2.			
950196			19	4. Servicios médicos			
950197			20	5. Transporte			
950198			21	6. Otro			

Período de pago ó Frecuencia: 1. Semanal/2. Quincenal/3. Mensual/4. Trimestral/5. Semestral/6. Anual

PASE A 503 INGRESO POR RENTA Y/O OCUPACIONES SECUNDARIAS

OBSERVACIONES:

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR:

27 28

CODIGO	CLASE DE INGRESO
502	INGRESO POR TRABAJO INDEPENDIENTE
ENTREVISTADOR: El valor ha de ser el ingreso en la clase de trabajo anotado en la pregunta 11 del Cuestionario 1.	
31 36	¿Cuál fue su GANANCIA NETA , es decir lo que le quedó después de deducir los gastos de la actividad en el último periodo (semana, quincena, mes, trimestre, semestre, año)?
9502 01	Periodo <u>37-44</u> <u>45-52</u>
31 36	¿Cuál fue su GANANCIA NETA en los últimos 3 meses (suma lo ganado en todos los trabajos incluidos los camarones)?
9502 02	Uso Oficina <u>0 1</u> <u>37-44</u> <u>45-52</u>
31 36	En el último año de a ¿Cuál fue el mes y el monto de la GANANCIA NETA más alta?
9502 03	MES <u>37-44</u> <u>45-52</u>
31 36	En el último año de a ¿Cuál fue el mes y monto de la GANANCIA NETA más baja?
9502 04	MES <u>37-44</u> <u>45-52</u>
	¿Retira de su negocio bienes para el consumo de su hogar? Si ☐ No ☐ Pase a 503
31 36	En el último mes a ¿Cuál fue el valor de los bienes retirados como: abarrotes, carne etc.?
9502 05	Uso Oficina <u>0 1</u> <u>37-44</u> <u>45-52</u>
31 36	En los últimos 6 meses de a ¿Cuál fue el valor de los bienes retirados como: muebles, prendas de vestir, etc.?
9502 06	Uso Oficina <u>0 1</u> <u>37-44</u> <u>45-52</u>

CODIGO	CLASE DE INGRESO
503	INGRESO POR LA VIVIENDA OCUPACION (SI) SECUNDARIA (SI)
31 36	¿Además de lo declarado anteriormente, ¿desempeña usted en el último mes otra ocupación, profesión, oficio o clase de trabajo?
	Si ☐ No ☐ Pase a 504
31 36	¿Desempeña esa ocupación como asalariado o independiente?
9503 01	ASALARIADO ☐ 1 INDEPENDIENTE ☐ 2 <u>37-44</u>
31 36	¿A que se dedica el negocio, institución, o empresa en que desempeña esta ocupación secundaria?
31 36	¿Cuanto fue el SALARIO NETO o la GANANCIA NETA en el último periodo de pago?
9503 02	Periodo <u>37-44</u> <u>45-52</u>
PERIODO DE PAGO: 1. Semanal/ 2. Quincenal/ 3. Mensual/ 4. Trimestral/ 5. Semestral/ 6. Anual	

CODIGO	CLASE DE INGRESO
504	TRANSFERENCIAS REGULARES RECIBIDAS (MONETARIAS)
En el mes de ¿Cuánto recibió usted por concepto de:	
31 36	Pensión por jubilación o invalidez?
9504 01	Uso Oficina <u>0 1</u> <u>37-44</u> <u>45-52</u>
31 36	Pensión alimenticia?
9504 02	Uso Oficina <u>0 1</u> <u>45-52</u>
31 36	Ayuda de otros hogares
9504 03	Uso Oficina <u>0 1</u> <u>45-52</u>
31 36	Becas para estudio?
9504 04	Uso Oficina <u>0 1</u> <u>45-52</u>
31 36	Otras transferencias?
9504 05	Uso Oficina <u>0 1</u> <u>45-52</u>
9504 99	Uso Oficina <u>0 1</u> TOTAL <u>45-52</u>

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR:

27 28

505		RENTA DE LA PROPIEDAD	
En los últimos 12 meses de _____ a _____ ¿Cuánto recibió usted por concepto de _____?			
31 36		Pagos por arrendamientos de hecho?	
9505 01	Uso Oficina	1 2 3 27 44	€ 45 52
9505 02	Dividendos?	Uso Oficina	1 2 3 €
9505 03	Intereses provenientes de bonos, certificados a plazo, préstamos y otros valores?	Uso Oficina	1 2 3 €
9505 04	Intereses provenientes de cuentas de ahorro?	Uso Oficina	1 2 3 €
9505 05	Alquiler de casas, edificios y otros activos fijos?	Uso Oficina	1 2 3 €
9505 06	Alquiler de tierras en efectivo?	Uso Oficina	1 2 3 €
9505 07	Alquiler de tierras en especie (productos o servicios)?	Uso Oficina	1 2 3 €
9505 08	Alquiler de marcas, patentes, derechos de autor, etc.?	Uso Oficina	1 2 3 €
9505 09	Otros ingresos de la propiedad?	Uso Oficina	1 2 3 €
9505 10	¿Existió socio de una cooperativa de producción?	Si ☐ No ☐ → Pase a 506	
9505 10	¿Cuánto recibió por su participación en el beneficio de la cooperativa?	Uso Oficina	1 2 3 €
9505 99	TOTAL	Uso Oficina	1 2 3 €

506		OTROS INGRESOS	
En los últimos 6 meses de _____ a _____ ¿Cuánto recibió usted por concepto de _____?			
9506 01	Herencias?	Uso Oficina	0 6 3 €
9506 02	Seguros por accidente?	Uso Oficina	0 6 3 €

506		Continuación... OTROS INGRESOS	
9506 03	Seguro de vida?	Uso Oficina	0 6 3 € 45 52
9506 04	Prestaciones (por despido o renuncia)?	Uso Oficina	0 6 3 €
9506 05	Juegos de azar (lotería, chances, rifas, etc.)?	Uso Oficina	0 6 3 €
9506 06	Otros ingresos ocasionales?	Uso Oficina	0 6 3 €
9506 99	TOTAL	Uso Oficina	0 6 3 €

600 TRANSACCIONES FINANCIERAS Y GASTOS NO DE CONSUMO

601		TRANSACCIONES FINANCIERAS	
En los últimos 3 meses de _____ a _____			
9601 01	¿Retiro dinero de su cuenta de ahorro o depósitos a plazo del banco u otras entidades financieras para efectuar gastos del hogar?	Si ☐ No ☐	
9601 01	¿Cuánto retiró?	Uso Oficina	0 3 3 €
9601 02	¿Recibió dinero en calidad de préstamo?	Si ☐ No ☐	
9601 02	¿Cuánto recibió?	Uso Oficina	0 3 3 €
9601 03	¿Recibió dinero por préstamos otorgados por usted?	Si ☐ No ☐	
9601 03	¿Cuánto recibió?	Uso Oficina	0 3 3 €
9601 04	¿Efectuó ventas de bonos, acciones u otros valores similares?	Si ☐ No ☐	
9601 04	¿Cuánto recibió por la venta?	Uso Oficina	0 3 3 €
En los últimos 12 meses de _____ a _____			
9601 05	¿Recibió dinero por la venta de viviendas, terrenos, muebles, automotores, maquinaria y equipo, etc.?	Si ☐ No ☐ → Pase a 602	
9601 05	¿Cuánto recibió por la venta de viviendas y terrenos?	Uso Oficina	1 2 3 €
9601 06	¿Cuánto recibió por la venta de muebles, autos, maquinaria, etc.?	Uso Oficina	1 2 3 €

Nº DE ORDEN Y NOMBRE COMPLETO DEL PERCEPTOR :

27 28

602 SALIDAS DE DINERO	
En los últimos 3 meses de a	
31 36	¿Efectuó ahorros o depósitos a plazo en bancos u otras entidades financieras?
9602 01	Si No ¿Cuánto ahorró? Uso Oficina <u>0 3</u> <u>37-44</u> <u>45-52</u>
9602 02	¿Efectuó compras de bonos, acciones u otros valores similares? Si No ¿Cuánto compró? Uso Oficina <u>0 3</u>
9602 03	¿Efectuó pagos por cuotas de ahorro y préstamos o clubes de compra? Si No ¿Cuánto pagó? Uso Oficina <u>0 3</u>
9602 04	¿Otorgó usted algún préstamo de dinero? Si No ¿Cuánto prestó? Uso Oficina <u>0 3</u>
En los últimos 6 meses de a	
	¿Efectuó pagos por préstamos recibidos por usted? Si No Paso a 8A
9602 05	¿Cuánto pagó por el capital? Uso Oficina <u>0 6</u>
9602 06	¿Cuánto pagó por intereses? Uso Oficina <u>0 6</u>
9602 07	¿Cuánto fue el monto total pagado incluyendo capital e intereses? Uso Oficina <u>0 6</u>
En los últimos 12 meses de a	
8 A	¿Realizó gastos por adquisición o ampliación de su vivienda? Si No Paso a 10A
8 B	¿El gasto fue al contado o al crédito? CONTADO CREDITO
9602 08	¿Cuál es el valor total de contado? Uso Oficina <u>1 2</u>
SOLO SI MARCO CREDITO	
9602 09	¿Cuál es el valor pagado en los últimos 12 meses? Uso Oficina <u>1 2</u>
10 A	¿Realizó gastos por adquisición de terreno? Si No Paso a 12A
10 B	¿El gasto fue al contado o al crédito? CONTADO CREDITO

602 Continuación SALIDAS DE DINERO	
31 36	¿Cuál es el valor total de contado?
9602 10	Uso Oficina <u>1 2</u> <u>37-44</u> <u>45-52</u>
SOLO SI MARCO CREDITO	
9602 11	¿Cuál es el valor total pagado en los últimos 12 meses? Uso Oficina <u>1 2</u>
12 A	¿Realizó gastos por la compra de bienes tales como: maquinaria y equipo, máquina de tejer, muebles, etc., para uso en el taller, negocio o finca? Si No Paso a 603
12 B	¿El gasto fue al contado o al crédito? CONTADO CREDITO
9602 12	¿Cuál es el valor total de contado? Uso Oficina <u>1 2</u>
SOLO SI MARCO CREDITO	
9602 13	¿Cuál es el valor total pagado en los últimos 12 meses? Uso Oficina <u>1 2</u>

603 GASTOS NO DE CONSUMO	
En los últimos 12 meses de a ¿Cuánto pagó por concepto de :	
9603 01	Impuesto territorial? Uso Oficina <u>1 2</u>
9603 02	Impuesto sobre la renta? (Si NO se le deduce del sueldo) Uso Oficina <u>1 2</u>
9603 03	Otros impuestos directos (Ej. Impuesto al ruedo, al traspaso de bienes inmuebles) Uso Oficina <u>1 2</u>
En el mes de	
9603 04	¿Dió usted dinero a otro hogar o institución sin fines de lucro por concepto de pensión alimenticia, ayuda a parientes, regalos, donaciones u otro? Si No ¿Cuál fue el monto total? Uso Oficina <u>0 1</u>
9603 05	¿Efectuó pagos de cuotas a asociaciones privadas sin fines de lucro (Sindicatos, Asoc. Prof., etc.)? Si No Uso Oficina <u>0 1</u>
9603 06	¿Realizó gastos por mantenimiento y reparación de bienes dados en alquiler? Si No ¿Cuánto gastó? Uso Oficina <u>0 1</u>
9603 07	¿Efectuó pagos por gastos como tasas, timbres, embargos, etc.? Si No ¿Cuánto pagó? Uso Oficina <u>0 1</u>
9603 99	Uso Oficina <u>0 1</u> TOTAL

OBSERVACIONES:

MINISTERIO DE ECONOMIA, INDUSTRIA Y COMERCIO
DIRECCION GENERAL DE ESTADISTICA Y CENSOS

UNIDAD EJECUTORA
CONVENIO MEC-BID-CEPAL ATN/SF-2419 C.R

ENCUESTA NACIONAL DE INGRESOS Y GASTOS DE LOS HOGARES COSTA RICA 1987-1988

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GASTOS DIARIOS DEL HOGAR

OBLIGATORIEDAD Y CONFIDENCIALIDAD DE LA INFORMACION

En los Artículos 3º y 4º de la Ley General de Estadística se lee: "...toda persona natural o jurídica, está obligada a suministrar los datos que sean necesarios para la elaboración de las estadísticas nacionales...". "Los datos obtenidos con arreglo a lo previsto en el artículo anterior serán estrictamente confidenciales. No podrán ser suministrados ni publicados en forma individual sino como parte de cifras globales, salvo con la previa autorización del interesado. Para este efecto se considerarán como cifras globales las que corresponden a tres o más personas físicas o jurídicas. Tampoco podrán ser suministrados estos datos para propósitos fiscales, de investigación judicial, o de cualquier otra índole que no sea de carácter estadístico."

1. LOCALIZACION

Provincia: _____
Cantón: _____
Distrito: _____
Teléfono: _____
Dirección: _____

4 Segmento 11

12 13

Vivienda

14

Hogar

2. SEMANA DE LA ENTREVISTA

Del: 15 20

Al: 21 26

3. RESPONSABLES DE LA ENTREVISTA

Nombre del Entrevistador: _____

Nombre del Supervisor: _____

[illegible]

[illegible]

USO DE LA OFICINA			¿CUÁNTO GASTO POR CONCEPTO DE:			
CODIGO	CANTIDAD	VALOR	ARTICULOS COMPRADOS	MARCA	CANTIDAD Y UNIDAD DE MEDIDA	VALOR ¢
37-36	37-44	45-52	(1)	(2)	(3)	(4)
1300			BEBIDAS ALCOHOLICAS (Cerveza, guaro, ron)			
1400			TABACO (Cigarrillos, puros)			
1900			ALIMENTOS PARA ANIMALES DOMESTICOS (Alpiste, huesos, carne para perro)			
100000			TOTAL ALIMENTOS BEBIDAS Y TABACO			
			OTROS GASTOS DEL HOGAR (Periódico, bus, taxi, gasolina, comidas fuera del hogar, dinero dado a los hijos para gastos en la escuela, colegio, universidad, etc., estampillas, lotería, tiempos, rifas, llamadas de teléfonos públicos)			
799999			TOTAL OTROS GASTOS			
			ARTICULOS AUTOCONSUMIDOS (Productos provenientes de la producción del hogar)			
		1				
		1				
		1				
		1				
199999		1	TOTAL AUTOCONSUMO			
			ARTICULOS AUTOSUMINISTRADOS (Productos provenientes del negocio o comercio del hogar)			
		2				
		2				
		2				
		2				
199999		2	TOTAL AUTOSUMINISTRO			

[illegible]