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Number 2

The Incidence of Taxes and Public Expenditures in the Canadian Economy

by

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"From the dew of the few flakes that melt on our faces we cannot reconstruct the snowstorm." [John Updike, "The Blessed Man of Boston, My Grandmother's Thimble, and Fanning Island", Pigeon Feathers and Other Stories, Fawcett Publications, Inc., Connecticut, 1963, p. 157.]

"What is needed is a framework of simplifying assumptions,...sufficiently simple to permit the development of hypotheses.... In the meantime, reasoning on incidence will lead to unverified hypotheses rather than to results that may be relied upon without qualification. However, considerations of incidence play an important part in the immediate needs of tax legislation, and properly so; this being the case, the social scientist, unlike the astronomer, cannot postpone judgment until a wholly conclusive proof can be given. Short of the limiting case of complete ignorance, the economist is called upon to produce as good a hypothesis as may be developed, even though it be less than perfect." [Richard A. Musgrave, The Theory of Public Finance, A Study in Public Economy, McGraw-Hill Book Company, Inc., New York, 1959, p. 364.]

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CHAPTER I—INTRODUCTION

PURPOSE OF INVESTIGATION

The purpose of this investigation is to estimate the distribution—by size classes of income—of tax payments, government expenditures and the net fiscal incidence. 1/ In other words we attempt to provide the factual information necessary to answer the questions "What proportion of the total tax bill is paid by different families?", and "What proportion of the benefits from total government expenditure is received by different families?". These are pertinent questions to be answered, because considerations of incidence and tax equity play an important part in the formation of rational fiscal legislation dealing with revenue requirements and the provision of public expenditures.2/

The Theory of Fiscal Incidence

Our task, in other words, is to determine the fiscal incidence, that is, the incidence (this term will be defined shortly) of the impact of both aspects of governmental activity—expenditures and revenues. Let us suppose that in the abstract realm of pure theory, a private economy exists in which each individual owns a collection of assets (including the capitalized value of his labour), the income flows from which define his "economic position" relative to any other individual. Prior to time "t" the individual had no method of satisfying his social wants, wants, that is, that can only be satisfied by goods consumed (or, at least, which are available for consumption) in equal amounts by all.

At time "t" the individuals of this private economy decide to create a government to provide those goods necessary to satisfy their social wants. The function of this public sector is to divert resources from the private sector of the economy to the provision of goods which satisfy social wants. 3/ Various alternative methods exist with which to effect this resource transfer, and each one may have a different impact on various aspects of an individual's "economic position". At time "t+1" the economy has made a complete adjustment to the introduction of the public sector. Each individual experiences a change in his "economic position" due to the taxes which he now pays and the benefits from public services which he receives. It is this change in "economic position" which comes close to defining the term "incidence".

It is necessary, however, to give operational content to the term "economic position". In the broadest sense it can be taken to include the collection of assets which an individual owns - his wealth position. The lack of sufficiently detailed data on individual holdings of all assets, not to mention the dearth of theoretical analysis of taxes in terms of asset position, precludes any empirical investigation along this line. It is usual to rely on current income as a measure of an individual's relative position; to the extent that current income is an accurate reflection of an individual's asset position, then our measure of incidence will approach the measure of "economic position".

In addition, it is necessary to group individuals in some manner; it would be empirically impossible to estimate the fiscal incidence of each individual. Consequently, we group individuals in two ways: (1) the first grouping is by "families and unattached individuals", primarily because these two groups are the predominant decision-makers, and most relevant

data are similarly classified; (2) secondly, we group "families and unattached individuals" by income classes to simplify the estimating procedure. Throughout this study families and unattached individuals are designated as "families". 4/

In effect we are interested in examining the impact of the entire public sector on the distribution of income, or, fiscal incidence. When a public sector is introduced into a perfectly competitive economy, each family finds that its income position relative to others is altered, both by the tax payments it makes and by the value of the benefits that it receives from government expenditures. In other words, fiscal incidence can be defined as the changes in relative income positions of families, due to the tax and expenditure policies of the public sector. To examine thoroughly such changes in relative income positions entails an estimation of the distributions - by size classes of income - of total tax payments, all government expenditures, and the net impact of the public sector.

The Estimation of Fiscal Incidence

The task of determining fiscal incidence has been divided into three parts. Chapter 2 deals with the distribution of tax payments by income class to determine the incidence of the total tax structure. Chapter 3 examines the effect of government expenditures, including both transfer payments and the provision of goods and services, upon the distribution of income. Finally, Chapter 4 estimates the net redistributive impact of the total fiscal structure on the distribution of income; in effect, this is an estimation of the degree of income redistribution brought about by the existing fiscal system. This chapter lays the groundwork for the estimations made in the study.

Our estimation of the distribution of tax payments by income brackets involves two distinct steps: theoretical hypotheses are made concerning the incidence of various taxes by broad economic categories of factor shares and consumer outlays, and these hypotheses are then translated into distributional changes by size brackets of income. The results are a quantification of theoretical deductions, and not empirical evidence in an econometric sense. Consequently, our results are less than ideal. Nevertheless, they are an important first step in determining the actual distributional considerations of tax policy. As more empirical evidence on incidence becomes available it can be integrated into the analysis presented in this paper.

Chapter 2 also examines in some detail the validity of the theoretical hypotheses which play a decisive role in the development of the entire argument. The determination of the incidence of a tax depends upon an examination of relative income changes from the income-sources and income-uses side of a family's economic position. 5/ On the income-sources side, tax policy may change the family's earnings before tax and, in addition, it may alter the share of those earnings taken by various taxes. Tax policy does not impinge upon the family's earning position alone; it also affects the spending pattern. On the income-uses side, tax policy may affect the real value of disposable income by altering the prices of goods which confront the family as a consumer (income-user). Both effects must be allowed for in any theorizing about the incidence of taxation.

The next step is to examine the distributional effect of government expenditures. Traditionally, the tax side of the budget has received more emphasis than its counterpart, public expenditures. As a theoretical matter, academic interest in the public economy has centred on the theory of tax incidence, mostly on a detailed and technical level. In addition to tax

incidence, the public economy has been concerned with the redistribution of money incomes. In order to formulate tax legislation to achieve that degree of redistribution which the members of the economy deem "desirable", it was first necessary to determine the distribution of income given the existing tax structure. On the empirical level, inadequate data and the number of apparent value judgments have deterred investigators from examining in detail the distribution of benefits from government expenditures.

We have rejected this one-sided view of the question. In the first place, money income includes transfer payments which only exist within the context of a given public sector; consequently, it is a logical extension to examine the benefits from public goods and services. Secondly, we cannot make conclusions about the redistributive effects of the fiscal system without making some (explicit or implicit) assumptions about the distribution of government expenditures. Chapter 3 discusses in detail the estimation of expenditure incidence. This estimation faces conceptual and statistical difficulties which, while they do not render the task insuperable, do suggest a margin of error that is wider than for the tax estimates.

The final step is to estimate the net fiscal incidence. It is slightly misleading to consider government expenditures as a positive factor and taxes as a negative factor in affecting real incomes; in effect, they are jointly necessary to fulfil the function of the public sector outlined above - the diversion of private resources to public uses. For the purposes of empirical analysis, however, Chapters 2 and 3 do treat each fiscal component as a separate and distinct element. When the results of these two chapters are combined, it is possible to determine (within limits) the degree of income redistribution brought about the existing fiscal system.

A final note on terminology may be necessary. The empirical evidence in this study is presented in terms of progressive or regressive fiscal systems. A progressive tax or expenditure schedule is one in which the "effective" tax or expenditure rate (tax payments as a percentage of income) increases as income increases. A regressive tax or expenditure schedule describes the situation in which the "effective" tax or expenditure rate decreases as income increases. A regressive net fiscal schedule (expenditure rate minus tax rate) is one in which the "effective" rate of net budget incidence, (1) if positive, falls as income increases, and (2) if negative, increases as income increases.

This terminology is quite straightforward with respect to the tax side of the budget. However, since we tend to define a "regressive" rate as being unfavourable to the lower income-earners, it is necessary to note that when we consider expenditure and net fiscal incidence, a "regressive" rate is favourable to the lower income recipients. In the discussion to follow, therefore, an attempt will be made to follow the word "regressive" with "favourable to the lower income-earners".

THE INCOME CONCEPT

Our final measure of progression or regression of the tax and expenditure structures will depend, as much on the income base against which taxes and expenditures are measured, as it does on the distribution of taxes and expenditures. We here set forth the income concept used throughout this study. 6/ Most tax studies present two alternative income concepts: family money income and a "broad" income concept. The final choice is left to the preference of the reader. 7/ Both family money income and the "broad" income concept include money income, such as, wages,

salaries, rent, interest and transfer payments, and certain adjustments to render the money income concept consistent with the tax analysis. These adjustments usually include: retained corporate earnings, capital gains income, the unshifted portion of the corporation income tax and the backward-shifted portion of social security contributions. If the corporation is viewed as a conduit, with all earnings (and potential earnings) allocable ultimately to its stockholders, then retained earnings can logically be imputed to the shareholder as part of his total income.

In the American studies of this nature, realized capital gains income is a part of the taxable base and, as such, must be included in the family's income. Logically, we ought to include them here, for, while they are not part of the taxable base, they are a source of income. Since the share of total income which is attributable to capital gains is expected to increase as incomes rise, exclusion of capital gains from total income will tend to understate upper bracket income proportionately more than lower bracket income; consequently, our estimates of progression will be greater than the true progression over the upper income ranges. In other words, exclusion of capital gains income will augment the pattern of tax incidence in the upper income brackets.

We mention this because, in the absence of a capital gains tax, no data exist on the level, or the distribution, of capital gains in Canada; consequently, we did not feel justified in including in our income concept for the standard case an arbitrary estimate of capital gains. 8/

With respect to the corporate income tax, if it is assumed that a portion of this tax falls on the shareholder, then this portion must be

added to his income, as well as being considered as a part of his tax burden. If the corporation tax reduces the shareholders' pre-tax income then its repeal would augment shareholder income by the amount of the part that falls on profits. In addition, that portion of the tax which falls on retained earnings must be imputed to shareholder income. Without this logical imputation we are left in the uncomfortable position of assuming that part of the corporate tax is unaccounted for or falls on the "corporation as such"; and the corporation is viewed here as having no entity apart from its shareholders.

The same line of reasoning allows us to add that portion of the social security contributions which falls on wage earners to the income of wage earners, as well as of treating it as a part of their tax payments.

But there are certain forms of non-money income which are an important source of income for some families, such as, food and fuel grown and consumed on the farm, and imputed interest of financial intermediaries. The inclusion of these non-money income items adds up to the "broad" income concept. It is difficult to know when to stop adding non-money income; our procedure is to aim at a "broad" income concept which is similar to personal income in the National Accounts. 9/

A final adjustment has to be made to the income base before the final income distribution used in the analysis can be determined. When the word "income" is used it generally does not include the benefits from government expenditures, but it does include an amount that goes to pay taxes. In addition, the available statistical income distribution includes a certain portion of government expenditures—transfer payments to families. Now for the purposes of this analysis, the effect of taxation and government

expenditures upon the distribution of income must be treated consistently.

That is:

(1) either the income base must exclude the entire public sector, or it must include the entire public sector within its distribution; 10/

and

(2) all government expenditures—expenditures on goods and services and transfer payments to families—must be treated identically in the income base.

Within a wider context we could perform various experiments; in the first place, we could introduce a public sector into the economy and measure the distributive effect of taxes and expenditures as a percentage of income prior to the introduction of the public sector; alternately, we could remove the public sector from an economy which included the public sector, and measure the distributive effect of taxes and expenditures as a percentage of income prior to the removal (that is, income which included expenditures and excluded taxes). In the following table, Table 1.1, these situations are described by experiments J and K, respectively.

Included in the table are several other experiments which could be carried out with each fiscal component, while the other component is assumed non-existent or constant at a given level. Since our main interest lies in the net redistributional fiscal pattern, we intend to estimate formulae J and K; there are no strong grounds for preferring one or the other, and any final choice is left to the discretion of the reader.

It would be tedious to present the results for all experiments, the nature of some of which is not too enlightening. We present here formulae A and D for taxes, and E and H for expenditures (the components of J and K). It might be noted that formula A is the basic income concept used by most researchers, except for the fact that our income, Y, excludes transfer payments to persons.

TABLE 1.1

FISCAL EXPERIMENTS

Introduce Taxes	Introduce Expenditures	Introduce the Public Sector
A. into a no-expenditure situation	E. into a no-tax situation	J. into an economy where no budget exists
B. into a situation where expenditures are given	F. into a situation where taxes are given	
Remove Taxes	**Remove Expenditures**	**Remove the Public Sector**
C. from a no-expenditure situation	G. from a no-tax situation	
D. from a situation where expenditures are given	H. from a situation where taxes are given	K. from an economy where the budget exists

Formulae for the Various Experiments

A. $\frac{T}{Y}$	E. $\frac{B+R}{Y}$	J. $\frac{B+R-T}{Y}$
B. $\frac{T}{Y+B+R}$	F. $\frac{B+R}{Y-T}$	
C. $\frac{T}{Y-T}$	G. $\frac{B+R}{Y+B+R}$	
D. $\frac{T}{Y+B+R-T}$	H. $\frac{B+R}{Y+B+R-T}$	K. $\frac{B+R-T}{Y+B+R-T}$

Y: income; T: taxes; B: government expenditures on goods and services; R: transfer payments.

We are left, therefore, with two equally acceptable income concepts: the income base without the public sector is designated as "broad income"; and the income base with the public sector is called "adjusted broad income". 11/ Both income concepts are derived in some detail in the Appendix to this paper. 12/ Table 1.2 summarizes the income distributions described there. As was to be expected the "broad income" base is less equally distributed than the "adjusted broad income" base. The empirical evidence presented in the following chapters is based on the two income bases. To simplify matters, only evidence using the "broad income" base is presented in the body of the investigation, while the Appendix provides evidence for both bases. The interested reader will discover that, except for a few rare qualifications—both income concepts support the same conclusions.

TABLE 1.2

THE DISTRIBUTION OF INCOME, 1961

Family Money Income Class 1/	"Broad Income" 2/ Millions (1)	Cumulative Per Cent (2)	"Adjusted Broad Income" 3/ Millions (3)	Cumulative Per Cent (4)
Under $2,000	$ 846	3.1	$ 1,716	5.8
$2,000 - $2,999	1,611	9.1	2,254	13.5
3,000 - 3,999	2,645	18.9	3,151	24.2
4,000 - 4,999	3,862	33.3	4,336	39.0
5,000 - 6,999	7,220	60.1	7,650	65.1
7,000 - 9,999	5,516	80.6	5,517	83.9
10,000 and Over	5,212	100.0	4,732	100.0
Total	$26,912		$29,355	

Note: Details may not add to totals due to rounding.

Source: **Table A-4, line 20 and 23.**

1/ The income classes throughout this chapter and the next two chapters are called "Family Money Income Classes" because the distributive series used to allocate the various income components are on a family money income basis. The income contained within the family money income class may be either "broad" or "adjusted broad".

2/ The "broad income" concept is reconciled with official statistics in the following manner: personal income in the National Accounts for 1961 is $28,506 million. From this are subtracted charitable contributions from corporations and grants to universities and non-commercial institutions ($999 million), while pension income of $158 million and interest payments on consumer debt of $159 million (which is originally deducted from personal income) are added. When income adjustments (necessary to render the income base consistent with the shifting assumptions, and described in the appendix) of $1,542 million are added, the resulting basic income concept is $29,366 million. Transfer payments are then deducted to result in a "broad income" base of $26,912 million.

3/ The "adjusted broad income" concept is derived by adding to "broad income", government expenditures on goods and services, and transfer payments to families of $11,771 million, and subtracting tax payments of $9,328 million. These totals are derived in the Appendix and presented later in the text.

STATISTICAL BASES

The Distribution of Income

The preceding section developed theoretically the income concepts which are used throughout this study. This section details the estimation of those income bases in three broad steps. First, the distribution of money income is presented. Then, after some non-money adjustments are estimated, the "broad income" base is derived. Finally, the "adjusted broad income" base is obtained.

FAMILY MONEY INCOME CONCEPT

The family money income concept, which is the basis for the various income concepts (and distributions) used throughout this investigation, is similar to the money income portion of personal income given in the National Accounts. In general, the aggregate total for each income component is derived from the personal income counterpart in the National Accounts, whereas the distributive series for each component is obtained from the D.B.S. survey of non-farm incomes. 13/ Strict comparability of personal income in the National Accounts and in the Survey of Consumer Finances is not to be expected, because of the differences in income components selected in each case, and differences in coverage with respect to the sample population included.

The Survey of Consumer Finances excludes (1) families whose major source of income is military pay and allowances, (2) farm operator families (3) the institutional population and (4) families living temporarily abroad, in the Yukon or the Northwest Territories. 14/ In addition, excluded from the survey is all income in kind, such as, labour income, imputed rent and

imputed banking services. Finally, income from pensions and annuities is included in the Survey distribution.

Personal income in the National Accounts includes, besides all income in kind, investment income of life insurance companies, non-life mutuals, industrial pension funds and profits of co-operatives, and grants to non-commercial institutions, such as hospitals and charitable organizations. Personal income in the National Accounts does not include income from pensions and annuities.

For our purposes all income, either in cash or imputed in kind, is the relevant income base against which to compare taxes and government expenditures. Family money income, set forth in Table A-4, includes the personal income totals for wages and salaries, net income of unincorporated business, investment income (exclusive of imputed rent and institutional investment), pension income and transfer payments to individuals (exclusive of grants to non-commercial institutions), all of which are distributed by the Survey's distributive series.

The raw data that are used to estimate the series are grouped by family money income brackets. For this reason, all tables in this study are labelled by "family money income classes" even though the "broad income" or "adjusted broad income" concepts may be grouped by these income classes. The term, "family", used to designate families and unattached individuals throughout this report is consistent with the definition given in published sources. The family in this context includes the economic family which is "a group of individuals sharing a common dwelling unit and related by blood, marriage or adoption", and unattached individuals who "are persons living by themselves or rooming

in a household where they are not related to other household members". 15/

In addition family money income includes military pay and allowances and net income from the operation of a farm. The totals are from the National Accounts, and the series used to distribute them are estimated in the following manner.

The exclusion of income recipients of military pay and allowances from the 1961 Survey of Consumer Finances forced us to look elsewhere to develop a distribution of the income of armed forces personnel by size classes of income. We obtained the military strength by rank for each service as of the end of June 1961. 16/ We also obtained the estimated annual per capita personnel cost by rank for each service as at the end of fiscal year 1961. For each service the income distribution by rank was then converted into an income distribution by size classes of income. The aggregate distribution for all services is shown in line 15, Table A-1, and it is used to allocate military pay and allowances.

The farm-related distributive series which are used throughout this study are based on the as yet unpublished results of the 1958 farm income and expenditure survey. 17/ The sampling unit used was an agricultural holding, defined as a "land holding on which agricultural operations were carried out and which was (1) three or more acres in size, or (2) from one to three acres in size and produced agricultural products valued at $250 or more during the survey year". The results are presented in the form of dependency ratios; i.e., farm families are classified by the proportion of their total income which comes solely from the operation of a farm.

Three difficulties had to be faced before the 1958 Farm Survey could be utilized. In the first place, it was necessary to render the sampling unit comparable with the non-farm income surveys. For some farm operators the operation of a farm may have been a secondary activity which contributed a minor component of total income; in this case the farm operator in the 1958 Farm Survey would properly be part of the non-farm labour force, and as such, would be included in the Non-Farm Survey. This farm operator should logically be excluded from the 1958 Farm Survey.

The non-farm income surveys define as farm families, those in which for one or more members, "income from the operation of a farm exceeds fifty per cent of the member's total income". Consequently, it was necessary to exclude from the 1958 Farm Survey all farm holdings where income from the operation of the farm was less than fifty per cent. This was a straightforward matter for those farm holdings which are grouped by dependency ratios - all operators with dependency ratios less than fifty per cent were excluded. Operators with negative income from the operation of a farm were not ranked by dependency ratios; but those farm holdings with negative farm incomes, but positive total incomes, also had to be excluded. Their income from other sources must have been such as to offset their negative farm incomes, and this would suffice to put them in the non-farm labour force.

There was one final complication in adapting the 1958 Farm Survey to the non-farm income surveys. The non-farm income surveys exclude farm operators whose income from the operation of a farm is in excess of fifty per cent of the operator's total income. Now, whereas the 1958 Farm Survey

presents some data for both farm operator and farm operator family, relevant data ranked by dependency ratios are available only by farm operator family. Consequently, the farm operator family had to be used. The difference is probably not significant; because the total number of farm holdings included on a farm operator basis, when adjusted to a farm operator family basis, compared favourably with the total number of farm holdings included on a farm operator family basis.

The second difficulty concerns the reliability of the 1958 Farm Survey results. The net income from the operation of a farm is understated in comparison with the Dominion Bureau of Statistics annual series: this understatement is comprised of a seven per cent overstatement of operating expenses coupled with a fifteen per cent understatement of gross income from farm sales. 18/ However, differences in concepts and coverage make it extremely difficult to gauge the significance of this understatement of income; (1) the survey year was neither a crop year nor a calendar year; (2) the survey only included products and services for which payment was received during the survey year; (3) the survey provided values as products left the farm (other statistics compute values at various wholesale points in the marketing process); and (4) the survey included the value of inter-farm transfers. 19/ In addition, there is no way of knowing the effect of this understatement on the distribution of farm income.

A very simple expedient was employed to allow for the understatement. 20/ Not only those farm operator families with dependency ratios in excess of 50 per cent, but also those with 40-49 per cent dependency ratios, have been included in the raw data used to estimate the distribution of farm income.

These difficulties face any one who attempts to utilize the 1958 Farm Survey. In addition, we desire distributive series for the year 1961. To do nothing - i.e., to assume, implicitly, that the distribution of total farm income remained constant from 1958 to 1961 — would run counter to our knowledge that: (i) the distribution of non-farm income changed (which lead us to anticipate a change in the distribution of farm income from non-farm sources); and (ii) the amount of income derived from farming declined by 24 per cent. 21/ It is not at all clear, however, just what should be done to adjust for these changes. Any adjustment would necessitate several arbitrary assumptions pertaining to either or both the level of distribution of farm income from non-farm sources, and farm income from farm sources. Rather than attempt such an arbitrary adjustment, it is assumed that the 1958 distribution of farm income from farm sources can be used to allocate 1961 farm income.

The preceding discussion suggests that the distribution of farm income is subject to a margin of error larger than that which is usually associated with survey data. Unfortunately, there is no way of quantifying this probable error, an error which serves to reduce, somewhat, the accuracy of the total distribution of income. 22/

In totalling all these items, family money income amounts to $26,401 million.

"BROAD INCOME" CONCEPT

"Broad Income" is derived from family money income in three stages: first, certain non-money items are added to family money income. The next step is to make certain adjustments so as to render the income concept

consistent with the entire analysis of tax incidence. Finally, transfer payments to persons are deleted. Each stage is now examined in some detail.

Besides actual money income, for some families imputed non-money services may be an important source of real income. 23/ It is necessary to add in such non-money or imputed income as, rent of owner-occupied homes, imputed banking services, and food and fuel grown and consumed on farms. In addition, investment income of life insurance companies and industrial pension funds, which forms a considerable portion of total investment in the personal income section of the National Accounts, must be imputed to individuals. We have imputed the entire $604 million to policyholders on the basis of their insurance premiums paid. 24/ When all these additions are made, the income concept approximates personal income in the National Accounts. 25/ In total, non-money additions of $1,421 million are made.

The next step is to make certain adjustments to the income base in order to render it consistent with the entire analysis of tax incidence. Specifically, adjustments to the income concept must be made to allow for: (i) retained corporate earnings; (ii) the unshifted portion of the corporation income tax; and (iii) the backward-shifted portion of social security taxes.

During 1961 retained corporate earnings amounted to $779 million. To be consistent with the entire analysis, this item must be imputed to shareholders as part of their income. Since foreign ownership of Canadian industries (excepting agriculture) amounts to roughly 34 per cent of the total, $265 million which is not allocable to Canadian income recipients, is first excluded. 26/ The remaining $514 million is allocated to

Canadian families by the series, dividends received.

During 1961 the corporation profits tax accruals amounted to $1,610 million. In Chapter 2 it will be assumed that one half the tax is borne by shareholders, the remainder by consumers. 27/ Now, while that part of the tax which falls on profits is properly treated as part of the shareholders' tax burden, it is also part of his income base. For example, if the corporate tax reduces shareholders' income, then it is, in effect, part of their pre-tax income; and it must be imputed to their income account. After the foreign tax portion has been excluded, $531 million is allocated to families by a distribution of dividends received.

It only remains to adjust for the backward-shifted portion of the employee and employer contribution to social insurance and government pension funds. In 1961 this item amounted to $787 million in the National Accounts and included contributions to: (1) unemployment insurance ($277 million); (2) public service pensions ($375 million); and (3) workmen's compensation and industrial employees' vacations ($135 million). With respect to all three, it will be assumed in Chapter 2 that the employee contribution is not shifted and, thus, rests on the wage and salary earner. It will also be assumed that one half of the employer contribution is borne by the wage and salary earner, the remainder being shifted forward to the consumer for items (1) and (3). The employer in item (2) is the government (at all levels) and, consequently, it is assumed that no shifting takes place.

That part of the social insurance contributions which falls on the wage and salary earner is part of his pre-tax income; consequently, it

must be added to his money income. This addition appears under "adjustments to family money income": item (1) is allocated by the series, "covered" wages, while items (2) and (3) are allocated by all wages. In total, social security payments of $497 million is added to income.

The final stage in going from family money income to the "broad income" base, used throughout the investigation, is to subtract transfer payments to persons. When transfer payments of $2,542 million is deleted, the resulting "broad income" total is $26,912 million.

"ADJUSTED BROAD INCOME"

"Adjusted broad income" is derived from "broad income" in two steps: first, total tax payments are subtracted; and secondly, government expenditures on goods and services, and transfer payments to persons, are added. The distribution of tax payments is estimated in Chapter 2, and the distribution of all government expenditures is estimated in Chapter 3. The final result is an "adjusted broad income" of $29,355 million.

The Distribution of Families

Associated with the preceding distribution is a distribution of family units. The derivation of this distribution is not without its faults, and the series is presented as an approximation only. Our main reservation liesin having to make use of data from three different sources for non-farm, farm, and military families. This procedure is necessary in order to make use of our available distributions by income class.

First, 4,719 thousand non-farm families (and unattached individuals) are distributed by data presented in the 1961 Survey of Consumer Finances. Next, 378 thousand farm families (so designated in the 1961 Census) are

distributed by data presented in the 1958 Farm Survey. Finally, 120 thousand military families are distributed by data provided by the Department of Defence. Two reservations must be noted: first, the census "family" definition, while similar to, is not identical with, the survey "family". 28/ Secondly, the distribution of farm families in 1958 is applied to the number of farm families during 1961. These points somewhat reduce the accuracy of the distribution in Table 1.3.

TABLE 1.3

THE DISTRIBUTION OF "FAMILIES" BY INCOME CLASS

CANADA, 1961

Family Money Income Class 1/	Families 2/ Thousands	Cumulative Per Cent
Under $2,000	1,134	21.7
$ 2,000 - 2,999	633	33.8
3,000 - 3,999	697	47.2
4,000 - 4,999	771	62.0
5,000 - 6,999	1,117	83.4
7,000 - 9,999	602	94.9
10,000 and over	263	100.0
TOTAL 3/	5,217	

Note: Details may not add to totals due to rounding.

Source: Table A-4, line 24.

1/ The income classes throughout this chapter and the next two chapters are called "Family Money Income Classes" because the distributive series used to allocate the various income components are on a family money income basis. The income contained within the family money income class may be either "broad" or "adjusted broad".

2/ Families in this Table, as elsewhere throughout this study include families and unattached individuals.

3/ The total number of families, 5,217 thousand, is not significantly different from the number of families when the census "family" is converted into the survey "family", 5,079 thousand. (Source: unpublished data provided by D.B.S.)

The 1961 Census gives a population of 18,238 thousand. When the number of families given here is multiplied by the average number of persons per family the estimated population is 17,498 thousand. The discrepancy is explained by the fact that we had to use 1959 figures for the average number of persons per family. This is the last year for which average family size could be obtained from the family consumption expenditure surveys. But, on the whole, the estimates are very close.

The distribution in Table 1.3 has one main use throughout this study. When the distribution of families is divided into the various income distributions, the resulting average per family income amounts are used as reference points for the charts that depict the general patterns of tax, expenditure, and fiscal incidence.

The Distribution of Consumption Expenditures

Two sources exist from which one can drive an estimate of the distribution of total consumption by income class. 29/ The 1959 Survey of Consumer Expenditures provides expenditure patterns for urban areas with a population in excess of 15,000 for the weighted average of families and unattached individuals. When these average per family expenditure patterns (by size classes of income) are multiplied by the number of families and unattached individuals (by size classes of income), the result is the distribution of total consumption expenditures (for urban areas with a population in excess of 15,000), the percentage distribution of which can be used as a distributive series with which to allocate various taxes.

Now these data cover large urban dwellers only, and they might obscure the structure and distribution of family living expenditures which would result if small urban and farm families were to be included in our weighted average. While we have no indication of the average expenditure pattern of small urban families, the 1958 Farm Family Expenditure Survey can be employed to derive an estimate of farm family living expenditures. This survey (as yet unpublished) presents some preliminary data on farm family living expenditures by income class. These data are classified for all dependency ratios. The sampling unit is a "land holding on which agricultural operations were carried out and which was (1) three or more acres in size or (2) from one to three acres in size and [which] produced agricultural products valued at $250 or more during the survey year". 30/ Farm income solely from the operation of a farm could be much less than half the aggregate income of farm operator families.

In other words, for purposes of farm family living expenditures the 1958 Farm Family Expenditure Survey includes a number of "farm operators" who are not really farmers (by the D.B.S., non-farm survey definition), and who would be included in the 1961 Survey of Consumer Finances but excluded from the 1959 Survey of Consumer Expenditures, provided that they live in areas with a population of less than 15,000. There is a presumption that these farm operator families, for whom farm income is less than 50 per cent, do reside in rural or small urban areas; consequently, no double counting will occur when the consumption pattern of these families is included with the farm population. 31/

One final qualification is necessary. The empirical results presented in this study were estimated using the unpublished preliminary data from

the 1958 Farm Family Expenditure Survey. After these computations were carried out, a set of unpublished adjusted data was made available to the author. Time did not permit a complete recomputation; but fortunately, the general pattern of farm family living expenditures for the adjusted data did not differ significantly from the general pattern for the preliminary data. In fact, there was almost no change at all in the percentage distribution of each farm family consumption outlay. As a result, we are confident that the evidence using the preliminary data would not be altered if the adjusted data were substituted.

The next step is to add the non-farm consumption data and the farm consumption data to effect a distribution of total consumption expenditures. This distribution is weighted average of the consumption patterns of (i) all families and unattached individuals in urban areas with a population in excess of 15,000; (ii) all farm operator families and unattached individuals, and (iii) an unknown proportion of families in small urban areas. We are not entirely satisfied with this approach; the urban data are for 1959 and the farm data are for an unusual 1958-59 twelve-month period that varied by region. In addition, not all family consumption patterns are covered (particularly, military families and some families in small urban areas). Without some pattern of consumption expenditures, however, this entire study would be impossible; and it is clearly preferable to have an approximate picture that encompasses all but a few families, than to profess complete ignorance. Besides, the general distributive patterns of consumer expenditures are unlikely to be drastically altered with the inclusion of those families that are uncovered by the Surveys. Until such time as more comprehensive and consistent data on consumption patterns become available, this approach is a necessary adjunct to an estimation of tax incidence.

The consumption patterns for 1959 are then extrapolated to 1961 to be on a comparable basis with 1961 income. The final distributions of consumer expenditures by income class are set forth in **Table A-2.**

REFERENCES

1/ Our concept of fiscal incidence is defined below and deals only with revenues and expenditures; it should not be confused with the redistributive effects that may result from the use of fiscal stabilization policy.

2/ The term "fiscal" will be used here and in the following chapters as synonymous with "the public sector", and it will always encompass both taxation and government expenditures.

3/ We neglect for the time being the objectives of fiscal stabilization and income redistribution, functions which a public sector can also perform.

4/ The term, family, is defined on p. 14.

5/ The income-source/income-uses dichotomy reflects the theory of incidence set forth in: Richard A. Musgrave, The Theory of Public Finance, A Study in Public Economy, McGraw-Hill Book Co. Inc., New York, 1959 hereafter referred to as Musgrave 1959.

6/ The discussion of this section draws heavily on the author's unpublished dissertation, The Effects of Public Expenditures on the Distribution of Income: An Empirical Estimate, Ph.D. dissertation, The John Hopkins University, Baltimore, 1963, hereafter referred to as Public Expenditures. A short version of this thesis is found in, The Brookings Institution, Studies in Government Finance, Essays in Fiscal Federalism, Richard A. Musgrave, Editor, The Brookings Institution, Washington, 1965.

7/ For a list of such tax studies, see Chapter 2, reference 1.

8/ But see Chapter 2, where we do provide an alternative case which includes a hypothetical capital gains component in the income base.

9/ There is a minor difficulty in the treatment of those income recipients who are forced into a higher income bracket — bracket jumpers — because of the inclusion of non-money income. We assume that bracket jumpers take an equal proportion of lower bracket income and lower bracket taxes with them. It is evident that both income and taxes in the lower income brackets will be overstated; the "effective" tax rates will be identical with those we would obtain if we knew the number of bracket jumpers. See Public Expenditures, p. 20, footnote 12.

10/ When we say that the income base must exclude the entire public sector, we mean that the income base is that concept which exists in the absence of the public sector; in other words, income without the public sector is total money income, plus some non-money elements. On the other hand, income with the existence of the public sector is total money income, plus some non-money elements, less tax payments, plus government expenditures on goods and services, and transfer payments.

11/ "Broad income" = Y, where Y is total money income plus some non-money income; and "adjusted broad income" = Y + B + R - T, where Y has the same meaning as before, B is government expenditures on goods and services, R is transfer payments, and T is tax payments.

12/ See Table A-4. We wish to emphasize again that the "broad income" base excludes transfer payments to families. Other tax burden studies have usually included such payments. This, in turn, accounts for some of the difference between our results and previous tax burden studies, especially over the lower income brackets where personal transfer payments play a relatively more important role.

13/ Dominion Bureau of Statistics, National Accounts, Income and Expenditure, 1961, catalogue No. 13-201, Queen's Printer, Ottawa, 1962; Incomes, Liquid Assets and Indebtedness of Non-Farm Families in Canada, 1958, catalogue No. 13-514 (hereafter referred to as 1958 Survey of Consumer Finances), Queen's Printer, Ottawa, 1960; Distribution of Non-Farm Incomes in Canada By Size, 1959, catalogue No. 13-517 (hereafter referred to as 1959 Survey of Consumer Finances), Queen's Printer, Ottawa, 1962; and Distribution of Non-Farm Incomes in Canada by Size, 1961, catalogue No. 13-521 (hereafter referred to as 1961 Survey of Consumer Finances), Ottawa, 1964. All data are unadjusted by taxation statistics; see any of the above publications for an explanation of this procedure.

14/ For a detailed description of these differences, see: 1959 Survey of Consumer Finances, pp. 63-64; and D.B.S., National Accounts, Income and Expenditure, 1926-1956, catalogue No. 13-502, Queen's Printer, Ottawa, 1958, pp. 123-126.

15/ 1959 Survey of Consumer Finances, p. 19. While this family concept differs from the spending unit ("a group of persons dependent on a common or pooled income for the major items of expense, and living in the same dwelling", D.B.S. Urban Family Expenditure 1959, catalogue No. 62-521, Queen's Printer, 1963, referred to as 1959 Survey of Family Expenditures, p. 6) used elsewhere, the difference is insignificant; it does not destroy the reliability of using the two sources in conjuncture. For substantiation of this point, see G. Oja and J.R. Podoluk, "Discussion of Concepts and Methods in D.B.S. Survey of Family Expenditure and Income", unpublished paper, (D.B.S., Central Research and Development Division).

16/ Military data were supplied by the Department of National Defence. The estimated per capita cost figures include basic pay and various allowances, such as trades pay, subsistence allowance, marriage allowance, etc.

17/ Dominion Bureau of Statistics, Farm Income and Expenditure Survey, 1958 (Schedule A), Table AFR-11 (Section 7 of 7), Canada, Central Research Division, hereafter referred to as the 1958 Farm Survey.

18/ D.B.S. 1958 Farm Survey Report, No. 1; Expenditures, Receipts and Farm Capital, cat. No. 21-506, occasional, Queen's Printer, Ottawa, 1962, p. 15.

19/ Ibid., pp. 18-19.

20/ This is one of the suggested adjustments that D.B.S. intends to use when the results of the 1958 Farm Survey are published.

21/ 1959 Survey of Consumer Finances, p. 60 for 1958; and D.B.S. National Accounts, Income and Expenditure, 1961, cat. No. 13-201, p. 24.

22/ This loss of accuracy is not apt to be serious, as net farm income from the operation of a farm is only 2 per cent of total family money income (Table A-4). The estimates are based on the preliminary (unpublished) results of the 1958 Farm Survey.

23/ It might be noted that some portion of what we have called family money income components includes elements of non-money income which we were not able to separate out, namely, supplementary labour income, labour income in kind, and military income in kind.

24/ Besides life insurance companies, this item also includes fraternal societies, industrial pension plans, mutual non-life insurance companies and the government annuities fund.

25/ The remaining differences are detailed in the notes to Table A-4.

26/ Non-resident ownership of investment in Canadian companies (exclusive of agriculture) was 34 per cent for the year-end of 1959, the last year for which data are available; this ratio remained virtually constant from 1955 on. However, the variation among industries is considerable and within manufacturing the portion of foreign-owned investment ranges from 22 per cent (textiles) to 89 per cent (automobiles and parts). For further details, see: D.B.S., The Canadian Balance of International Payments, 1960 and International Investment Position, cat. No. 67-201, Queen's Printer, Ottawa, 1962, Table XII, p. 80 and Statement 32, p. 60. Data for 1961 are found in: D.B.S., Quarterly Estimates of the Canadian Balance of International Payments, Third Quarter, 1963, cat. No. 67-001, Queen's Printer, Ottawa, 1963, pp. 12-16.

27/ This is the standard case; other assumptions are also employed, with corresponding changes in the income base. See: Table A-8(a).

28/ The survey "family" is defined on p. 14. The census family "consists of a husband and wife, with or without children who have never married, or a parent with one or more children who has never married, living together in the same dwelling (1961 Census of Canada; Bulletin 2.1-9, p. 1).

29/ D.B.S., Urban Family Expenditure, 1959, catalogue No. 62-521, Queen's Printer, Ottawa, 1963, hereafter referred to as the 1959 Survey of Consumer Expenditures; and D.B.S., Farm Income and Expenditure Survey, 1958-59, Schedule B, Table B-5 (unpublished data provided by D.B.S.) hereafter referred to as the 1958 Farm Family Expenditure Survey.

30/ D.B.S., 1958 Farm Survey Report; No. 1, Expenditures, Receipts, and Farm Capital, cat. No. 21-506, Agriculture Division, Queen's Printer, Ottawa, 1962, p. 8.

31/ By this assumption we ignore the wealthy landowner who lives in a large city and still manages his own farm.

CHAPTER 2—THE INCIDENCE OF THE TOTAL TAX STRUCTURE

SELECTION OF TAXES

The major steps involved in estimating the incidence of the total tax structure are: (1) the selection of taxes to be included; (2) the allocation of tax payments by income brackets; and (3) the translation of this allocation into a schedule of average "effective" tax rates. This allows us to determine the degreee of progression or regression which applies to the total (federal, provincial and municipal) Canadian tax structure. 1/ In the selection of taxes to be included in this type of analysis it is generally agreed that fees and the sales proceeds from public enterprises should be excluded. While it is admitted that profits of public enterprises may be treated as indirect costs, in practice, they are excluded also. 2/ In light of the importance of profits from the sale of liquor for provincial tax revenues, we have here departed from past procedure, and have decided to treat this profit revenue as similar to an excise tax on liquor.

The tax revenues that are examined in some detail are shown in Table 2.1. This table differs somewhat from the usual published statistics of D.B.S. The taxes are for net general revenue, and the provincial and municipal data are on a comparable basis for the fiscal year 1961. We have adjusted Financial Statistics of Federal, Provincial and Municipal Governments to exclude several minor items that are not readily allocable, as described in the Appendix. The tax rental payments to the provinces have been treated as provincial tax revenue for the year 1961. In addition, social security contributions have been included in the tax estimates.

TABLE 2.1

TOTAL TAX PAYMENTS, 1961 */

Revenue Source	Total Tax Payments		Total Tax Payments Exclusive of Taxes Exported to Foreigners	
	Millions (1)	% (2)	Millions (3)	% (4)
1. Individual income tax	$ 2,137	21.4	$ 2,137	22.9
2. Corporate profits tax	1,610	16.1	1,191	12.8
3. Succession duties	151	1.5	151	1.6
4. General sales taxes	1,400	14.0	1,400	15.0
5. Selective excises 1/	1,482	14.8	1,440	15.4
6. Import duties	535	5.3	535	5.7
7. Property tax	1,399	14.0	1,300	13.9
8. Social security	600	6.0	600	6.4
9. Other taxes 2/	676	6.8	575	6.2
10. Total Taxes 3/	9,990	100.0	9,329	100.0

* For all levels of government: Inter-governmental transfers are deleted.

Source: D.B.S., Financial Statistics (and Table A-3(a)).

1/ Includes selective excises on liquor, tobacco, automobiles, gasoline and other commodities.

2/ Includes natural resource revenues (ground rents and royalties only), motor vehicle licences, taxes on premium income of life insurance companies, business taxes and hospital insurance taxes.

3/ During 1961, net general revenue for all levels of government amounted to $10,324 million (Financial Statistics) plus social security contributions of $600 million (National Accounts); see also: the discussion of social security contributions in Chapter 1. When non-tax revenues of $822 million and taxes of $112 million on income going abroad are deducted, the remaining tax payments are $9,990 million.

The percentage distribution of total taxes (federal, provincial and municipal) by tax revenue source (Table 2.1, column (2)) provides an approximate measure of the importance of various types of taxes. The individual income tax is the most important source of tax revenue (21%), followed by the corporation income tax (16%). General sales taxes, specific excises and the real property tax all bear the same weight (14%), while import duties, social security contributions and miscellaneous taxes each account for approximately 6% of revenues. Overall, taxes on income account for 39% of combined tax revenues, consumption, 34%, and the value of property, 14%.

Table 2.1 also includes an estimate of total tax payments, exclusive of those taxes which are assumed to be exported to foreigners. Before examining the incidence of each tax on Canadian families it is first necessary to consider the possibility of tax exportation. Most investigations that examine the distribution of tax payments assume a closed economy, and allocate all taxes to families within the economy.3/ While this can be justified as a necessary simplification of a much more complex problem, namely, the estimation of tax incidence in a general equilibrium setting which includes foreign transactions, it may be a distorting simplification for a country highly involved in international transactions on both its current and capital account. Canada is such a country. In light of this, the foreign sector must be integrated into this study.

First, consider the possible exportation of those taxes that fall on capital. Non-resident ownership of investment in all Canadian companies, except agriculture, was 34 per cent in 1961. 4/ As these

non-residents share in the ownership of investment in Canadian companies, so also do they share in the taxes which are assumed to be borne by corporate shareholders. Consequently, any tax which is assumed to fall on shareholders, such as, the unshifted portion of the corporation income tax, must be allocated between foreigners and Canadian shareholders; the latter share is distributed among Canadian shareholders (by a distribution of dividends received), while the foreign share is excluded from the analysis because it is not borne by Canadian families. Throughout this study, when a tax is assumed to fall on profit income, the foreign share is excluded.

The foreign share is measured by the ratio of non-resident investment to all investment in Canada. It is admitted at the outset that this is only a rough approximation of the possible exported share. However, it is remarkably similar to one other statistic that could be used to measure the foreign share—the ratio of corporation profits taxes paid on foreign capital invested in Canadian companies to corporation profits taxes paid on all capital invested in Canadian companies. 5/

Next, consider the possible exportation of those taxes which are applied to the sale of consumption goods. In the first place, not all exported goods are subject to sales taxes—specifically, the manufacturers' sales tax, excise taxes and excise duties exclude exported goods from taxation. This leaves those taxes that may fall on cost components and, via increased product prices may be shifted to consumers, such as, the shifted portion of the corporate profits tax, and that part of the tax yield from gasoline and fuel oil which originally falls on business as a cost factor. The incidence of such taxes in an international setting depends on the underlying competitive situation.

Theory suggests that consumers bear those taxes that operate in the manner of a sales tax. If it is assumed that Canada dominates the world market, then the sales tax is passed on to all consumers of Canadian goods. The tax payment made by Canadian families is the share of domestic consumption of total Canadian production, and that portion of the tax which is "exported" must be excluded from the distribution of tax payments on Canadian families. If it is assumed that Canada does not dominate world markets, then the tax burden may be borne by Canadian consumers, or shared by Canadian consumers and factors of production. On the other hand, to the extent that world markets have tax structures similar to Canada, then, in effect, the foreign consumer may bear a portion of the exported tax. It is assumed throughout this investigation that taxes on exportable consumption goods are borne by foreigners, and they are subtracted from the Canadian family's tax payments. 6/

1 At the same time, it is necessary to point out that Canada "imports" taxes from foreign sources in the very same manner. However, it is safe to neglect tax imports because: (1) they are not a Canadian policy variable, and we are interested in the distribution of Canadian tax payments—not all tax payments, both Canadian and foreign—of Canadian families; and (2) retaliation can be disregarded if we assume tax imports are independent of tax exports.

In addition, those taxes levied on foreign factors must be excluded from the estimation of the distribution of tax payments on Canadian families. In 1961, $112 million in income taxes on interest, dividends, and other income going abroad, was paid by foreigners.

SHIFTING ASSUMPTIONS

The Individual Income Tax

The individual income tax is assumed to rest with the initial payee, i.e., the tax is not shifted. This tacitly assumes that total factor supplies, labour and capital, are fixed. While this is a limiting assumption, if secondary changes are more or less neutral in their distributional implications, it is not so restrictive as it first might seem.

With respect to work effort, theorizing suggests that effort will be lower under a progressive, than under a proportional, tax. Given the shapes of the relative indifference curves between income and leisure, in general, a proportional tax on income involves an income effect which is favourable to work effort and a substitution effect which is adverse to work effort (the net return to work effort has decreased relative to [untaxed] leisure). In this situation work effort may increase, decrease or remain unchanged, depending on the strength of the income and substitution effects. A progressive income tax, however, involves a higher marginal rate than the proportional tax; consequently it involves a stronger substitution effect in favour of leisure and adverse to work effort. This leads to the conclusion that, for the individual, work effort will be lower under a progressive, than under a proportional, income tax.

However, even this conclusion no longer holds when all individuals are considered together. The substitution of a progressive for a proportional tax over the entire income range results in diverse changes in the

average and marginal rates (with the marginal change sharper than the average, for any degree of tax progression), depending on the level of income. 7/ As a result some individuals may increase their work effort, while others decrease their effort; it is impossible to determine a priori the change in the total supply of work effort for the entire group; it may increase, decrease, or remain unchanged.

If the supply of work effort increases or decreases, changes in the pre-tax rates of return for factors, and changes in the relative product prices, may give rise to further changes in the income position of families. Unfortunately, there is no way of allowing for these possible distributional changes in a meaningful way; it is usually assumed that such additional changes are more or less neutral with respect to the family's income position. This treatment may be more dubious with respect to the upper ranges of earned income where emphasis on relative income positions and administered prices may result in some shifting by setting higher salary rates before tax.

With respect to capital, the assumption of a fixed supply is a more serious theoretical limitation. Marginal propensities to save do vary at different points of the income scale; in addition, the supply of saving may be affected by changes in the distribution of tax payments, and factor shares and the rate of growth may be changed. There is no immediate method of determining the distributional consequences of these secondary changes; consequently, they are relegated to the category of neutral changes.

Given these limitations, the individual income tax is assumed to rest with the initial payee. The tax is allocated by a distribution of individual income tax payments derived from the 1959 Survey of Consumer

Expenditures. 8/ That portion of the income tax which is allocable to the provinces under the 1961 tax rental agreements is treated as a provincial tax.

The Corporate Profits Tax

The corporate profits tax is assumed to fall partially (one half), on profits, while the remainder is shifted forward to consumers. That portion of the tax that falls on profits is allocated by a distribution of dividends received. The part of the tax shifted forward to consumers is allocated by a distribution of total consumption.

This treatment of the corporate profit tax arises out of the lack of consensus concerning the incidence of the tax. Theoretically the case is far from clear. Traditional theory has held that in the short run the profits tax cannot be shifted; under conditions of profit maximization, the tax does not affect the optimum output either for a monopoly or perfect competition. Consequently, neither price nor the before-tax rate of return on capital is affected—the tax falls on profits. However, it was also recognized that short-run shifting might result from market imperfections. If taxable profits contain some variable cost components, if there is restraint in short-run monopoly profit maximization leading the monopolist to aim at a "fair" after-tax rate of return, or if tax rate changes act as a signal in oligopoly pricing, then there may be some adjustment in prices, wages, and the before-tax rate of return. In addition, if a certain segment of industry maximized sales subject to a profit constraint, then changes in tax rates would be shifted to consumers. 9/ In other words, it is possible to have some short-run shifting of the tax.

The empirical evidence is hardly any more conclusive. The literature of the incidence of the corporate profits tax provides some empirical evidence that can be interpreted to substantiate the hypotheses of both zero shifting and complete shifting. 10/ Research on this point was conducted in some detail for the Commission, and the available evidence, admittedly somewhat less than conclusive, points to a moderate degree of forward shifting in the short run. 11/

Traditional theory has argued that, in the long run, the reduction in the rate of return on capital is likely to lead to a reduction in capital formation which, in turn, decreases the rate of growth, alters the pre-tax rates of return, and the distribution of factor shares. The end result is that the burden of the tax may be spread from owners of capital to other groups. It is extremely difficult, however, to assess the distributional implications of the long-run shifting hypothesis. In addition, the empirical evidence is scarce. Therefore, while there is a presumption that some shifting occurs, it is not at all clear how much, or in what manner.

In the light of these complications, it would seem that no one assumption is completely satisfactory, if only because it would exclude reasonable alternatives that have sufficient support, based on theoretical deduction and empirical findings. Consequently, the approach adopted here is a two-sided one: first, the assumption of 50 per cent shifting to consumers is referred to as the Standard Case for allocating the corporate profits tax. In addition to the standard assumption, several alternative assumptions are entertained; specifically, in light of the Commission's findings elsewhere, it is assumed that there is zero shifting, the tax falling entirely on profits (alternative A). The assumptions of one-third

shifting (alternative B) and complete shifting forward to consumers (alternative C) are also entertained. The empirical estimates based on these alternative assumptions are presented later in this chapter.

General Sales Tax on Consumer Goods

The general sales tax on consumer goods is assumed to be borne by the consumer. The tax is allocated by a distribution of total consumption expenditures. This treatment is based on the general consensus among economists that the sales tax on consumer goods is, in fact, borne in proportion to total outlays on consumption.

Consider the substitution of a general sales tax for an income tax in an economy where income is divided between consumption and saving, and output is composed of both capital and consumption goods. On the income-sources side of an individual's income position, such a substitution is neutral in its effects—an income tax wedge between factor earnings and disposable income is replaced by a sales tax wedge between firm receipts and factor payments. These wedges are general in nature and chargeable against all earnings or cost payments equally. The tax is not neutral, however, in its effects on income-uses. The prices of consumer goods subject to tax rise relative to the prices of capital goods which are tax free. The position of consumers relative to savers is harmed by the substitution. It is this change in relative prices adverse to the consumer which indicates that the incidence of the tax, in a general equilibrium setting, is on the consumer.

This reasoning is independent of what happens to absolute price changes and changes in the consumption/savings ratio. In fact, under

the stimulus of the tax some "consumers" may become "savers". However, this structural change has no bearing on the final equilibrium income position of the family which is affected by relative price changes (which are neutral with respect to earnings but adverse to consumption with respect to uses). In addition, this gain to the saver may be a temporary or a permanent phenomenon; it is temporary if the saver saves more in order to consume later, and it is permanent if he saves for accumulation.

Consumption as a share of income declines as income increases; consequently the incidence of the general sales tax on consumer goods is generally regressive. At any one time there are families with temporarily low incomes who maintain their consumption at previous levels, either by dissaving or borrowing. However, it is only over the lower income brackets that aggregate dissaving is evident. As a result, a considerable portion of the sales tax is allocated to the lower income brackets, and this accounts for some of the regressivity of this tax. To the extent that such lower bracket dissaving reflects the weight of retired persons who are living off their past savings, then the burden of this tax, if calculated on a life-consumption pattern might be considerably less regressive. While this may be true, it may have little relevance for an estimation of the incidence of the total tax structure at any one time. To the retired person in such a position, it is the tax burden measured against his current income that is the most relevant factor; and he is probably little comforted by the knowledge that during his "saving" years he was a gainer.

Two Canadian taxes fall within the scope of a general sales tax on consumer goods—the general manufacturers' sales tax, and the provincial retail sales tax.

The manufacturers' sales tax at the federal level until recently exempted a wide range of machinery, equipment and producers' goods. 12/ Services are entirely excluded from the tax. In addition, certain consumer goods exemptions (such as food), are provided to improve the distribution of the tax burden. These exemptions and exclusions make it difficult to determine the tax yield by commodity classification; and it is the change in the price of taxable goods relative to the price of non-taxable goods which determines the distribution of the tax. The series, "taxable consumption: the manufacturer's sales tax", is derived in Table A-2, and it is used to distribute the federal general sales tax on consumer goods.

The other variant of the general sales tax on consumer goods in Canada is the general retail sales tax which is employed by eight provinces. In general, most retail sales taxes exclude all services, and exempt from tax all food purchases, some medicines and children's clothing, producers' goods, and farm equipment. 13/ The provincial retail sales tax is levied on the consumer and the retailer is merely the vendor, collecting the tax for the levying government. The series, "taxable consumption: provincial retail sales taxes", was estimated by including: all expenditures on housing, furniture, appliances and miscellaneous articles; 80 per cent of the expenditures on clothing; 70 per cent of the expenditures on transportation; 50 per cent of expenditures on personal care, alcoholic beverages and tobacco; and 20 per cent of the expenditures on reading, education and recreation. 14/

Recently there has been renewed interest in the proposition that a sales tax on consumer goods is shifted backward to factor inputs and borne in proportion to factor incomes. While the point is neither convincing

nor substantiated by empirical research, several alternative assumptions that assumed backward shifting to factors of various portions of the tax were attempted. The estimates, based on such alternative assumptions, are presented at the end of this chapter, and a more complete discussion of the entire issue accompanies the discussion of selective excise taxes.

Selective Excise Taxes

Selective excise taxes are assumed to fall on the consumers of the taxed products. The main excise taxes are on sales of liquor, tobacco, and motor fuel; there are many minor excise taxes which range from radios to playing cards and amount in total to no more than eleven per cent of all excises. Selective excise taxes are allocated by the distribution of consumption expenditures on the taxed articles, i.e., the excise tax on tobacco is allocated to smokers and it is distributed by a percentage distribution of consumption expenditures on tobacco, by income class.

The present discussion is divided into three sections: first, the traditional theory of the incidence of selective excises is presented. There follows a discussion of recent criticisms of this theory; and finally, the approach employed in this study is examined. In the first place, then, the theory of incidence with respect to selective excise taxes can be set forth as follows:

It is assumed that selective excise taxes and duties fall on the consumer of the taxed products. This hypothesis does not rest on the observed phenomenon of the price of the taxed product rising by the exact amount of the tax. Absolute price changes do not interest us here; rather, distributional implications arise out of relative price changes

which may arise in both the product and the factor market. 15/ Even if the taxed article had a completely elastic supply curve, or faced an infinitely inelastic demand curve, changes in the relative quantities demanded of taxed and non-taxed products—with the concomitant changes in relative factor prices—would have to be accounted for in a more complete analysis.

It is, therefore, necessary to examine the change in a family's economic position, after considering the effect on its income-earning and income-using activities. Let us suppose that in a simple all-consumption economy, with perfect competition in both the factor and the product market, an excise tax on product x_1 is substituted for a general proportional income tax (or sales tax on x_1, x_2 and x_3). On the income-uses side there are two general types of relative price changes. In the first place, the price of x_1 will rise relative to the prices of x_2 and x_3; this relative price change will depend upon the elasticity of substitution of x_2 and x_3 for x_1 on the part of both producers and consumers. If x_1 is a necessity, or an article of mass consumption, it will be more difficult for consumers to switch to, and for factors to be re-employed in, industries producing tax free x_2 and x_3. But given sufficient time and perfect mobility of factors then the change in relative prices is such as to harm consumers of x_1 relative to consumers of x_2 and x_3.

The second type of relative price change which occurs among the tax-free products x_2 and x_3 depends upon the relationship among all products in production and consumption. If x_2 is complementary in consumption with the taxed product x_1 then the price of x_2 relative to the price of x_3 will fall. This comes about in the following manner.

The increase in the price of the taxed good, x_1, relative to x_2 and x_3 leads to a reduction in the quantity demanded of x_1. If x_1 and x_2 are complements then the entire demand schedule for x_2 will also decrease; this leads to a fall in the price of x_2 relative to the price of x_3. If, on the other hand, x_2 is a substitute in consumption for x_1 the price of x_2 relative to the price of x_3 will rise. Substitutability in production will lead to a fall in the price of x_2 relative to the price of x_3.

These relative price changes can be translated into distributional changes by examining the importance of the products x_1, x_2 and x_3 in the consumer's budget pattern. The first type of relative price change is most easily accounted for. If x_1 is a necessity which decreases in importance as income increases, then differential incidence is regressive. The tax payment associated with the taxed article, x_1, can then be allocated to consumers in accordance with their purchases of the taxed article. Since most special excises, such as, taxes on gasoline, tobacco and liquor, fall on products which are broadly based and semi-necessities, it is to be expected that the allocation of partial excises will result in a regressive pattern of differential incidence.

The second type of change in the distribution of income is much more difficult to interpret meaningfully. One would have to know the substitutability/competitive relationship in consumption and production for the products in question, and even then a multitude of combinations is possible. It is usual to assume that this second type of relative price change is distributionally neutral. 16/ This leaves us with the conclusion that on the income-uses side differential incidence depends on the consumption characteristics of the taxed goods.

Let us now turn to the income-sources side of a family's income position. Let A and B be two producers who obtain their incomes in equal proportions from the production of x_1, and x_2 and x_3. Repeal of the proportional income tax benefits both A and B, but their relative factor earnings remain unchanged both before and after the tax repeal. So far differential incidence is neutral. With the imposition of the selective excise on x_1 relative product price changes will lead consumers to reallocate their budgetary expenditures among x_1, x_2 and x_3. The altered product mix will lead to a fall in the price of factors specific to the production of x_1, relative to the price of factors specific to the production of x_2 and x_3. However, since A and B share equally in the income from production of all three products, the earnings of A relative to those of B do not change; consequently, differential incidence is completely neutral from the income-earning side.

We are left with the conclusion that the differential incidence of selective excises is dependent solely upon the consumption characteristics of the taxed products. One crucial assumption underlies this conclusion, namely, all factors share equally in the income from the production of various industries. It is recognized that this is an unrealistic assumption. 17/ It can be reinterpreted, however in a manner which is more acceptable for general analytical purposes. While each individual obtains his income from a different industry (or combination of industries), it is sufficient—for purposes of determining the distributional implications—to consider the size distribution of income arising in the various industries. If it is assumed that this size distribution is roughly equal among industries, then we can justify our treatment of the tax burden as being neutral on the income-sources side of the picture. If data were available this

assumption could be empirically verified or refuted; its use seems preferable to a rather endless theorizing on relative factor price changes.

This general theoretical approach has not gone unchallenged; criticism has been of a theoretical and empirical nature. The theoretical criticism is centred on the incidence of selective excise taxes. 18/ Rolph argues—in the context of an absolute incidence setting—that a selective excise tax (and his argument applies to a general sales tax as well) is a wedge imposed between firm receipts and factor payments, and, as such, it reduces the aggregate incomes of factor owners. In other words, the payment of an excise tax is borne by an individual in his role as a factor of production and it is distributed proportionately to factor income. While there is some recognition in a recent paper, that the consumer may bear a portion of the tax, this does not alter the main conclusion—sales and excise taxes are borne on the income-sources side. 19/

This criticism of the traditional theory, however, seems to fall short of a complete analysis. In a simple all-consumption economy it can be shown that a general sales tax on consumer goods—as distinct from a selective excise—is equivalent to a proportional income tax. In a more complete model which allows for capital formation, even this result is no longer true; while factor owners experience a proportional gain in income, consumers are worse off than savers, due to the rise of the price of consumption goods relative to the price of capital goods. We noted, with respect to an excise tax, that there will be changes in the relative prices of factors; consequently, part of the burden of the tax will be borne by individuals in their roles as factor earners.

However, it is also necessary to examine individuals in their roles as consumers of taxed and untaxed products. Part of the tax is borne by those consumers who find that the prices of taxed products have risen relative to the prices of non-taxed products. 20/ By assuming equal size distributions of income among industries we were able to neglect the effects on the income-sources side, and consequently the income-uses effects became dominant. While this is less than ideal, the analysis is such that as relevant data permit, the neutrality assumption can be altered.

The second criticism concerns the treatment of the income-sources side in the discussion outlined above. It is argued that ignoring the income-sources side (which allows us to conclude the differential incidence is dependent on the consumption characteristics of the taxed article), distorts the possible outcome and ignores the fact that changes do occur on the income-sources side. 21/ This is basically a criticism of the assumption that the distribution of income by size class among industries (specifically, taxed versus non-taxed goods, and consumption versus capital goods) is equal. We noted the importance of this assumption in our previous discussion; we mentioned that when individuals are grouped by income brackets there may be less change in the size distribution of income; we noted the implications of the assumption: (1) there is no change in relative factor incomes, and (2) no portion of the tax is borne by individuals in their roles as recipients of factor incomes.

On the other hand, we know that there are changes in relative factor prices which harm some factors at the expense of others; it is merely assumed that these factor price changes are distributionally neutral. We regret the utilization of this simplifying assumption, but until empirical evidence on the income size distribution by industry becomes available, it is necessary. The fact is capable of being refuted, and when it is, appropriate adjustments can be made.

It remains only to outline the general approach that has been adopted in this study. While the position taken here is that the critics have not sufficiently undermined the basic theory, nevertheless we do have some reservations about allocating the entire revenue from selective sales and excises (and this applies to the general sales tax as well) to the consumers of the taxed products.

In the first place, our neutrality assumption may hide significant changes in the position of one factor owner vis-à-vis another. This reduction of a complete general equilibrium model to an empirically workable hypothesis may distort the incidence pattern. Unfortunately there is no way of quantifying the portion of tax borne by consumers and factors, and the distributions thereof, short of a complete econometric model that would attempt to determine coefficients of the sources and uses side of this problem.

Neglecting the empirical lack of income size distributions among industries, it might be advisable to assume that a certain percentage of the tax is borne by factor earners in proportion to their incomes. 22/ However, it is not at all evident just what percentage should be employed. To the extent that no factors are specific to any industry, and there is complete factor mobility in the long run, then there is a smaller probability that any part of the tax burden is borne by factors. For example, the probability is higher that land suitable primarily for growing tobacco, will absorb a greater portion of the tobacco excise than workers in the industry.

Secondly, we have been arguing in the context of a perfectly competitive economy; this permitted us to assume that relative price changes on the income-sources side were random—neutrally distributed. In a

non-competitive situation there can be more systematic changes on the sources side. Consumers subject to money illusion may react differently to a tax on consumption purchases and a hidden tax on gross receipts of firms. Unions subject to tax illusion may react differently in collective bargaining if a tax on factor income is imposed on the employer or employee. Finally, the existence of monopoly profits eliminates the equality between firm receipts and cost payments.

This latter fact may cause systematic changes in income distribution from the income-earnings side. A selective excise tax on good x_1, produced in an industry which exhibits a substantial monopoly profit, may now operate to reduce this monopoly profit; and changes from the income-sources side become considerable. If the supply of the taxed product is completely inelastic then the selective excise on x_1 becomes identical with a tax on monopoly profit; in a less extreme situation, if the tax partially curtails monopoly profits, then changes on the income-sources side will be similar to a tax on capital income. To the extent that the industry producing x_1 is less than perfectly competitive; and to the extent, therefore, that the size distribution of income arising in this industry is less equal (due to a larger share of capital income) than the total income size distribution, there is a higher probability that some portion of the selective excise tax will be borne in proportion to factor incomes.

All of which leads us to conclude that at least the conditions exist in which there can be some degree of shifting of selective excise taxes to the factors of production. We can quantify neither the share of the tax borne by factor owners, nor the distributional consequences of this share. We here resort to several alternative assumptions.

In the first instance, we assume that selective excise taxes are borne by consumers of the taxed products and the tax is allocated by a distribution of consumption expenditures on the taxed articles. This is known as our standard assumption. In addition we present three alternative cases: Alternative A shifts one third of the taxes to factors; Alternative B shifts two thirds of the taxes to factors, and Alternative C assumes that the entire tax is shifted to the factors of production; this share of the tax is allocated by the distribution of factor incomes. For these three alternative assumptions, where it is assumed that a portion of the tax falls on factor incomes, it is also necessary to add to the individual's pre-tax income an amount equal to his share in taxes paid. If we assume that the selective taxes reduce factor incomes, then repeal of the tax would augment factor incomes by an equal amount. The effect of this action will be to render the excise tax burden more proportional to income. 23/

The Property Tax

The property tax is of considerable importance, both because of its importance as a revenue source on the local level, and, due to this, its decisive weight in the allocation of the tax payments among the lower income groups. 24/ The present discussion moves on two levels: first it is necessary to disaggregate the property tax yield before it can be allocated to specific family groups of consumers or factors of production. Next, assumptions as to the incidence of the various tax components are formulated.

We can separate the following components of the real property tax for further analysis:

1. Business: land, improvements
2. Farm: land, improvements
3. Residential: renter-occupied: land, improvements
   owner-occupied: land, improvements

In theory, at least, we want to examine the incidence of the property tax whether the yield be derived from business, farm or residential property.

In practice, given the scarcity of relevant data in the area of property tax payments, it was extremely difficult to obtain an accurate disaggregation. In the first place, it was impossible to obtain the disaggregative components on the basis of assessed property values; as a result, we were forced to rely on estimated values of the capital stock in various types of property. 25/ Secondly, the sources for the composition of the value of capital in various types of real property entail a certain amount of conjecture and omission. For our purposes it was necessary to assume at the outset that the sources were comparable. Notwithstanding this element of judgment which increases the margin of error surrounding the treatment of the property tax, our final disaggregation of types of property is similar to previous studies in this field. 26/

The estimated value of business property is from Taxation Statistics, which includes fully tabulated corporations only (and which excludes corporations exempt from the corporation income tax; those corporations not providing detailed balance sheet data are not tabulated). The capital value of farm property is from the 1958 Farm Survey, and the value of residential real estate is obtained from CMHC compilations. Our assumed distribution between land and improvements for each type of property is based on data found in the same relevant sources. With respect to resi-

dential real estate CMHC no longer provides a separate estimate of the value of the capital stock in land as it is believed that the earlier figures were an understatement; therefore, we assumed that the value of land is 20 per cent the value of all residential real estate. 27/

The division between renter-occupied and owner-occupied homes is derived from data given in the 1961 Survey of Consumer Finances, the 1958 Farm Survey and unpublished CMHC estimates of residential capital. The proportion of home owners, as a percentage of all home owners and renters, for both urban and rural homes is applied to the value of residential capital to effect a total share of 67.3 per cent. It has been claimed that owner-occupied homes are more valuable than renter-occupied homes, and this may be true; but in the absence of any clear indication of the magnitude of this difference, we decided to allocate only 67 per cent of the residential share of the real property tax to owner-occupied homes.

In summary the disaggregation of the property tax yield follows the pattern set out in Table 2.2.

Let us now consider the shifting assumptions that can be applied to these various components of the property tax yield, and the pattern of distribution that can be used to allocate the tax. To the extent that the real property tax is applied to the value of land it cannot be shifted, and thus rests on the owner. This assumption arises out of the principle that the tax cannot be shifted because rent is determined by the price of the product produced, and is not a determinant of the product price. In such a setting, a tax on the value of land falls on the owner of the land who is incapable, given an inelastic supply of land, and in

the absence of any clear-cut market transaction, of shifting the tax to others.

TABLE 2.2

DISAGGREGATION OF THE PROPERTY TAX YIELD

1.	Business	33%			(i) Land	20%
					(ii) Improvements	80%
						100%
2.	Farm	9%			(i) Land	75%
					(ii) Improvements	25%
						100%
3.	Residential	58%	(i) Owner-occupied	67%		
			(ii) Renter-occupied	33%:	Land	20%
		100%		100%	Improvements	80%
						100%

Source: Table A-5, note to line 14.

That part of the property tax yield from business land is borne by business owners and is allocated by the distribution of dividends received. The portion of the property tax yield from farm land is borne by farm operators who own their own farms, and is allocated by the distribution of the estimated value of farm property (exclusive of the farm operator's house). That part of the property tax yield from residential-owner-occupied real estate is borne by the home owner and distributed by the estimated value of owner-occupied homes, while the tax yield from residential-renter-occupied real estate is borne by the landlord and is allocated by the distribution of net rental income.

To the extent that the real property tax is assessed on the value of improvements, then it may or may not be shifted, depending on the

type of improvement and market conditions. That part of the property tax yield from business and farm improvements is in the nature of an excise tax on the value of buildings and, as such, is capable of being shifted to consumers. 28/ Assuming these portions of the property tax are shifted, then the former is allocated by a distribution of total consumption while the latter is allocated by a distribution of expenditures on food products.

That part of the property tax on the assessed improvements of owner-occupied homes is again assumed to remain with the owner; and it is allocated by a distribution of the estimated value of owner-occupied homes. In the case of renter-occupied homes, though, the property tax on improvements is, in effect, an excise tax on the cost of providing rental units, and as such it enters into the cost of providing rental space; consequently, there will be an attempt to shift this tax to the tenant, a tendency which will be stronger the more inelastic the demand for rental space. Our standard assumption is to allocate the entire tax share falling on rental improvements to the tenant. As an alternative, we also present the results of allocating the tax (a) entirely to the landlord, and (b) equally between the tenant and landlord. 29/

Selective Factor Taxes

It is assumed that a tax on the earnings of a certain factor (e.g., wages) remains with the recipient. If factor supplies are not fixed, but decline due to the tax, then the nominal tax payment will understate the real cost, and relative factor price changes may have effects on relative product prices. If these changes from the income-uses side are more or less neutral, then the distributional considerations are determined from the sources side.

In a perfect market the distributional implications of a factor tax imposed on either the buyer's or seller's side of the market are identical. However, on the assumption that the wage bargain is net of employer, but gross of employee, contribution, it is customary to allocate the latter to the wage earner, while the former is assumed to be passed on to the consumer. We decided that some allowance of this kind was necessary. Consequently, we assume, with respect to payroll taxes (social security contributions), that wages absorb the entire employee contribution but only one half the employer contribution. The remainder of the employer contribution is passed on to the consumer.

In 1961 total contributions to social security amounted to $787 million. 30/ For the unemployment insurance programme the employee contribution ($139 million) and one half the employer contribution ($69 million) is allocated by a distribution of "covered" wages. 31/ The remainder is allocated to consumers by a distribution of total consumption expenditures.

In the case of public service pensions the employer is the government, and it is not expected that the employer's share would be shifted. In fact, this share need not be specifically allocated, as it will appear inseparable from the budget deficit or surplus; the distribution will be similar to the average tax payment. The employee's share ($188 million) is allocated by a distribution of wages and salaries.

With respect to workmen's compensation and industrial vacations the employee share ($68 million) and one half the employer share ($33 million) is allocated by wage income. The remainder is allocated by a distribution of consumption. In total, then, $600 million is treated as payroll taxes.

Succession and Estate Taxes

It is assumed that all succession and estate taxes can be allocated to income-recipients in the open-end upper income bracket. If it can be assumed that estate taxes rest on the donor, rather than on the beneficiary, then given the level of extremely high exemptions, it is safe to assign the entire tax to the over $10,000 income group. While this assumption is open to several qualifications, the relatively minor amount of the tax collected hardly justifies a more detailed approach.

Hospital Insurance Premiums

It is assumed that hospital insurance premiums or taxes remain with the payee; that is, such taxes are not shifted. In fact, hospital insurance taxes are merely a form of poll tax, from which there is no way of shifting the tax to other than the initial payee. This tax is allocated by a distribution of hospital insurance tax payments.

Customs Import Duties

It is assumed that customs duties are shifted to the consumers of the taxed commodities. In this manner import duties are similar to a general excise tax on consumption. The entire tax payment is distributed by the series, total consumption. 32/ This immediately raises the question of any possible portion of the tax being later exported to non-residents. To the extent that import duties fall on goods that are used in the production process to produce consumer goods which are in turn exported to non-residents, some part of the tax is exported. The calculations necessary to estimate this possible exported share of

the tax were considered to be too lengthy to justify the final results, and it is unlikely that there would be any significant change in the level or the distribution of the final pattern of tax incidence. 33/

"Other" Taxes

The category "other" taxes includes: (i) motor vehicle licences, (ii) natural resource revenues, (iii) taxes on the premium income of life insurance companies, and (iv) municipal business taxes. 34/ Motor vehicle licences are allocated by a distribution of expenditures on automobiles. Taxes on life insurance premiums and municipal business taxes are allocated by distributions of the value of life insurance paid and total consumption, respectively.

Two components of resource revenues are important tax sources for the provinces, and their incidence could not be neglected in an investigation of this kind. In the first place, resource rental payments and ground fees (for mineral and oil rights) can be allocated to business owners. Rent is price determined and as such is borne by the landowner. In the same sense a rental payment (or bonus) paid for the extraction of mineral or oil from Crown lands is borne by the companies involved as a reduction in profits. This tax is allocated by the distribution of dividends received.

The second significant resource is royalties—on oil, timber and minerals. A royalty is similar to an ad valorem excise tax, and it can be assumed to be borne by consumers of the taxed product. It is assumed here that the tax is borne by consumers, and it is allocated by a distribution of total consumption. 35/

REGIONAL TAXES: THE PROVINCES AND MUNICIPALITIES

In the previous discussion we have concentrated on the treatment of federal taxes with a passing reference only to provincial and local taxes; in effect, we have assumed that all taxes were levied by one central government. However, various levels of government must be allowed for in a manner which is theoretically consistent with this type of analysis. Consider the treatment of provincial and local, as distinct from federal, taxes.

In a theoretical setting one would first want to examine the incidence of a provincial tax as opposed to a federal tax. Suppose that it is agreed that a federal excise tax on x_1 is passed on to consumers of x_1; now, if Ontario imposes an excise on x_1, the incidence of the tax is the same provided that Ontario dominates the national market. If Ontario producers must sell at a nationally determined price, then the incidence of the tax is on the Ontario factors of production. If all other provinces were to impose a similar tax this burden would disappear.

In the first place, then, the separate estimation of the distribution of tax payments for any particular subregion (Ontario) involves examining the distribution of taxes on Ontario families imposed by the province itself. We replace Ontario taxes by a proportional income tax—while holding the taxes of all other provinces constant—and examine the differential incidence of Ontario taxes. This is a valid approach if the kernel of interest is an examination of the relative tax distributions among provinces. Our overall interest, however, is in the combined (federal-provincial) distribution of "effective" tax rates where the

incidence of the total provincial share, not just the share imposed by a particular province, is included. In other words, we are interested in the share of the Ontario family's tax burden imposed by: the federal government, the province of Ontario and all other provinces combined.

This gives rise to a second approach, where the object is to consider the incidence of all provincial taxes taken together. All these taxes are replaced by a proportional income tax, and the differential incidence can be examined in much the same manner as on the federal level. In combining all regional taxes, allowance should be made for the fact that they are imposed at regionally different rates. For example, suppose it is agreed that the business share of an excise on motor fuel is passed on to consumers in proportion to their outlay on all consumption goods. Let us assume that all provinces except Ontario and Quebec impose a 2% tax, while Ontario and Quebec impose a 4% and 7% tax, respectively, on motor fuel. The first 2% is a general tax which is allocable to the consumer; the next 2% can be divided between consumers and factors in Ontario and Quebec; while the last 3% will be paid largely by factors in Quebec. This may be an approximate picture only, depending on the relative ability of factors to move to lower tax areas.

Needless to say, this is an extremely complicated procedure, and it is further complicated by the fact that the provincial distributive series for income and consumption expenditures are somewhat more difficult to obtain, and are subject to a more significant sampling error, than the national series. In addition, the final pattern—one that would require considerably more calculations than have already been carried out—would probably not differ significantly from the standard pattern of provincial

and municipal tax incidence presented in the following section. Our only recourse is to aggregate all regional taxes and treat them as if they were imposed at a uniform central rate. While this is wrong in principle, it is clearly the only feasible method of dealing with regional taxes within the context of an estimate of the total (federal, provincial and local) tax distribution.

To the extent that regional tax rates are uniform, no overall error is introduced by treating provincial taxes as federal taxes. However, some variation in rates does exist and this will render our estimates less than accurate on the "provincial" level. 36/ To the extent that a province receives a greater than average amount of tax revenue from one of the clearly regressive or clearly progressive taxes, then that province will have a more regressive or more progressive tax system than average. The evidence below is presented for the aggregate provincial and municipal tax incidence, and no attempt is made to investigate individual provincial tax patterns.

EMPIRICAL RESULTS: THE STANDARD PATTERN OF TAX INCIDENCE

Before examining the empirical estimates of tax incidence given the preceding assumptions, it may be well to mention several points which are basic to a properly qualified interpretation of those results. In the first place, the estimates are presented as percentage rates, accurate to one decimal point, and this apparent precision may be misleading as far as the actual numerical magnitudes are concerned. Some of the difficulties encountered in the estimating procedure have been alluded to previously. These considerations suggest that there is some margin of error involved in the empirical estimates, although the nature of the study precludes the possibility of deriving a set of confidence limits that would bracket the

estimates. However, to the extent that the margin of error is not a function of the income level, but, rather, is randomly distributed throughout the income range, then the general distributive pattern of tax incidence is not altered, although the "true" level of effective tax rates may be higher or lower than the estimates.

In other words, an error surrounding the effective tax rate for the "under $2,000" income bracket could raise or lower the numerical magnitude without altering its position relative to the next higher income bracket. But our entire interest in this investigation is to examine relative income positions given the existing tax structure; the question of incidence is one of relative income changes. Consequently, the lack of proven accuracy for the level of effective tax rates does not reduce the meaningfulness of the investigation so far as the overall pattern of tax incidence is concerned. We suggest, therefore, that in evaluating the empirical estimates, the reader concentrate on the position of one income bracket vis-à-vis another, rather than on the actual tax rates for the two income classes.

A second point is concerned with the interpretation of the open-ended upper income bracket, "$10,000 and over". The effective tax rate given in each income bracket is an average figure which may not apply to any actual family; however, the narrow income classes employed up to an income level of $10,000, held to maintain the usefulness of applying the rate to any family within the bracket. The same cannot be said for the upper income bracket; there, one rate must encompass families with incomes of $10,000 and $1,000,000. The meaningfulness of the estimate is reduced, especially for considerations of tax incidence among income earners above $10,000. The evidence can suggest the degree of tax incidence between the "under $10,000" income brackets and the one average rate in the "$10,000 and over"

income bracket. The estimate can provide no information concerning the tax incidence within the upper income bracket; the total tax structure beyond $10,000 may be progressive, or partly progressive, and partly regressive throughout the remainder of the income scale, but our evidence does not permit us to draw any such conclusions. In the absence of data on family consumption expenditures for income levels beyond $10,000, it is impossible to extend the analysis in any greater detail. Consequently, no conclusions are drawn about the incidence of the total tax structure within the open-ended upper income bracket.

In the third place, to simplify the exposition, the evidence presented in the body of this report is based on the "broad income" concept, and what have been referred to as the standard shifting assumptions for the corporate profits tax, sales and excises, and the property tax. This evidence is referred to as the standard case. Later in this chapter the evidence for the alternative assumptions is examined. The Appendix contains estimates for both income bases, and the interested reader will discover that they both give rise to substantially the same conclusions.

With these qualifications in mind, taxes are allocated by the assumptions given above and the results are expressed as a percent of income. The resulting pattern of total tax incidence for the year 1961 is set forth in Table 2.3, and illustrated in Chart 2.1. Table 2.3 contains the effective tax rates for each income class for all taxes. The total tax structure (line 18) is regressive over the first four income classes—up to an income level of $5,000—and mildly progressive throughout the remainder of the income scale. When the "adjusted broad income" base is used, the regressivity over the lower income brackets extends up to an income level of $3,000, beyond which the total tax incidence is

progressive. 37/ Due to the uncertain nature of the effective tax rate in the upper income bracket, it is not clear just how progressive the tax system is over the upper income brackets. In general, though, the incidence of the total tax structure is regressive at least up to an income level of $3,000 (using the "adjusted broad income" base) and at most up to an income level of $5,000 (using the "broad income" base).

The federal tax structure (line 1) is regressive over the first two brackets and progressive beyond. This pattern is the result of several contrasting forces: first, the individual income tax (line 2) is progressive throughout the entire income range. The corporate profits tax (line 3) is regressive up to an income level of $5,000, and progressive beyond; such regressivity over the lower income brackets is explained by the portion of the tax that is shifted forward, and which is distributed by total consumption expenditures. The general sales tax, selective excises and import duties, all exhibit regressivity up to an income level of $5,000, proportionality from $5,000 to $10,000, and regression beyond.

The provincial and municipal tax structure (line 9) is regressive over the first three income brackets, and almost proportional beyond. The proportional pattern beyond an income level of approximately $4,000 is a result of the element of regression being slightly more than offset by an element of progression. The progressivity is inserted by the individual income tax and the corporate profits tax, although these taxes bear nowhere near the weight in the provincial and municipal tax structures that they do in the federal tax structure. Besides the sales and excise taxes, the property tax also lends weight to the regressive nature of the total provincial and municipal tax structure over the lower income brackets.

TABLE 2.3

EFFECTIVE TOTAL TAX INCIDENCE FOR THE TOTAL TAX STRUCTURE, 1961 */

Line	Tax Source	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000- and Over	Total
		Percentages							
1.	FEDERAL TAXES, total	27.3	16.9	18.0	17.3	19.3	20.7	23.8	20.2
2.	Individual Income Tax	1.1	1.9	3.3	4.5	7.2	8.8	10.4	6.9
3.	Corporation Income Tax	6.5	3.4	2.8	2.3	2.4	2.7	6.1	3.4
4.	Sales Tax	8.0	4.2	4.2	3.7	4.0	4.1	2.7	3.9
5.	Selective Excises	4.3	2.6	2.6	2.3	2.5	2.4	1.5	2.3
6.	Import Duties	4.7	2.3	2.2	1.9	2.0	2.0	1.3	2.0
7.	Estate Duties	-	-	-	-	-	-	1.4	.3
8.	Social Security Contributions	2.7	2.5	2.9	2.6	1.2	.7	.5	1.5
9.	PROVINCIAL & LOCAL TAXES, total	32.7	16.0	14.2	13.1	13.5	13.5	14.6	14.5
10.	Individual Income Tax	.1	.3	.5	.7	1.1	1.4	1.6	1.1
11.	Corporation Income Tax	2.0	1.1	.9	.7	.7	.8	1.9	1.0
12.	Sales & Excises	8.2	4.5	4.6	4.3	4.7	4.5	3.0	4.4
13.	Succession Duties	-	-	-	-	-	-	1.5	.3
14.	Hospital Insurance Premiums	2.6	.9	.7	.5	.4	.3	.1	.5
15.	Property Tax	16.3	6.8	5.4	4.8	4.3	4.0	3.8	4.8
16.	Other Taxes	2.7	1.6	1.4	1.3	1.4	1.5	2.2	1.6
17.	Social Security Contributions	.8	.7	.8	.8	.9	.9	.5	.8
18.	TOTAL TAXES, ALL LEVELS	60.0	32.9	32.2	30.5	32.8	34.2	38.4	34.7

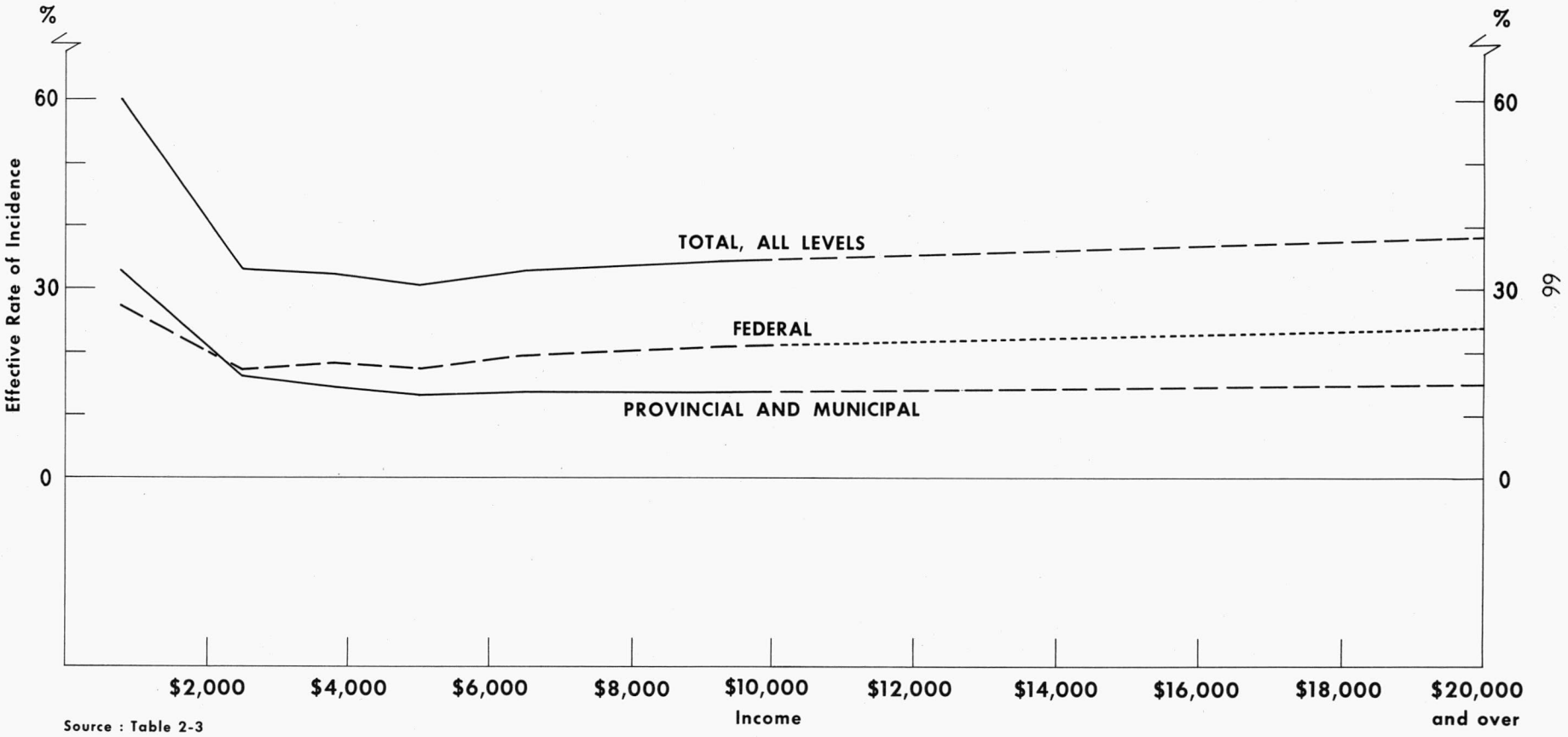
*/ Using the "broad income" base.

Note: Details may not add to totals due to rounding.

Source: Table A-6.

Chart 2-1

EFFECTIVE TOTAL TAX INCIDENCE, USING THE "BROAD INCOME" BASE



Source : Table 2-3

The property tax (line 15) is regressive over the entire income range. Hospital insurance taxes are regressive over the entire income range, but their weight is minor within the provincial and municipal tax structure.

To sum up, given certain assumptions as to the incidence of each tax, the evidence—with due allowance for some unquantifiable margin of error—suggests that the distribution of effective tax rates is regressive up to an income level of at least $3,000 and at most $5,000, and progressive beyond. It is this element of regressivity of the tax structure that is important when considerations of tax equity are involved. In total, one third of all families are affected by the regressiveness up to $3,000, while almost two thirds are affected by the regressiveness if it persists up to an income level of $5,000. 38/

It remains to be seen if these conclusions are altered when alternative shifting assumptions are employed for several taxes, namely, the corporate profits tax, sales and excise taxes and the property tax.

EMPIRICAL RESULTS: ALTERNATIVE SHIFTING ASSUMPTIONS

This section presents the empirical results for three adjustments. First, several alternative shifting assumptions are examined. Secondly, a hypothetical individual income tax series is substituted for the original series; and finally, a hypothetical capital gains component is added to the income base. These adjustments are set forth in Table 2.4.

First, consider the empirical results for the total tax incidence schedule when the alternative assumptions mentioned previously are entertained. Lines 1 through 3 present the total tax incidence for the corporate

profits tax adjustment. Whether it is assumed that there is zero shifting to consumers (Alternative A), one-third shifting (Alternative B), one-half shifting (The Standard Case), or complete shifting (Alternative C), the general pattern of total tax incidence is unaffected. There are changes in the magnitudes of some effective rates but, in general, the overall pattern—regression up to an income level of $5,000, and progression beyond $5,000—is not altered. In broad terms, then, the incidence of the total tax structure is not affected by whether the corporate profits tax is assumed to be shifted or not; the distribution of effective tax rates is similar in both cases. This is illustrated in Chart 2.2.

Three alternative assumptions were made with respect to the incidence of the sales and excise taxes. The Standard Case assumed that sales taxes are shifted to consumers. Alternative A assumed that one third of all sales taxes is shifted backward to the factors of production in the form of reduced earnings, in proportion to factor incomes. Alternative B assumed two-thirds backward shifting, and Alternative C assumed that there is complete shifting to the factors of production, with none of the tax being borne by consumers. The effective total tax rates are set forth in lines 4 through 6, Table 2.4. All three alternative assumptions still give rise to a schedule of tax rates which is regressive over the lower income brackets and progressive over the middle and upper income brackets. 39/ The general pattern is illustrated in Chart 2.3.

It was assumed (Standard Case) that the portion of the property tax yield from renter-occupied housing units is borne by the renter. Table 2.4 indicates that the general pattern of tax incidence is not altered if the landlord is assumed to bear this portion of the property tax.

TABLE 2.4

EFFECTIVE TOTAL TAX INCIDENCE FOR VARIOUS ALTERNATIVE ASSUMPTIONS, 1961 */

Line	Item	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000- and over	Total
		Percentages							
	CORPORATE INCOME TAX ADJUSTMENT								
1.	Assumption A	55.4	31.2	30.1	28.6	30.7	32.4	40.6	33.5
2.	Assumption B	58.4	32.4	31.5	29.8	32.1	33.7	39.2	34.3
3.	Assumption C	64.9	34.7	34.4	32.4	34.9	36.0	36.0	35.9
	SALES TAX ADJUSTMENT								
4.	Assumption A	53.0	30.4	29.9	28.6	30.6	31.9	37.1	32.6
5.	Assumption B	48.2	29.0	28.4	27.6	29.3	30.7	36.7	31.3
6.	Assumption C	43.2	27.5	27.2	26.6	28.1	29.5	36.3	30.1
	PROPERTY TAX ADJUSTMENT								
7.	Assumption A	60.6	33.5	31.8	29.9	32.4	34.1	39.4	34.7
8.	Assumption B	60.3	33.2	32.1	30.1	32.6	34.2	38.9	34.7
9.	Standard Tax Schedule for a Hypothetical Individual Income Tax	59.9	32.2	31.2	29.0	30.3	31.3	46.9	34.7
10.	Standard Tax Schedule for an Income Concept Including a Hypothetical Capital Gains Component	58.5	32.4	32.0	30.3	32.6	33.9	36.2	34.0

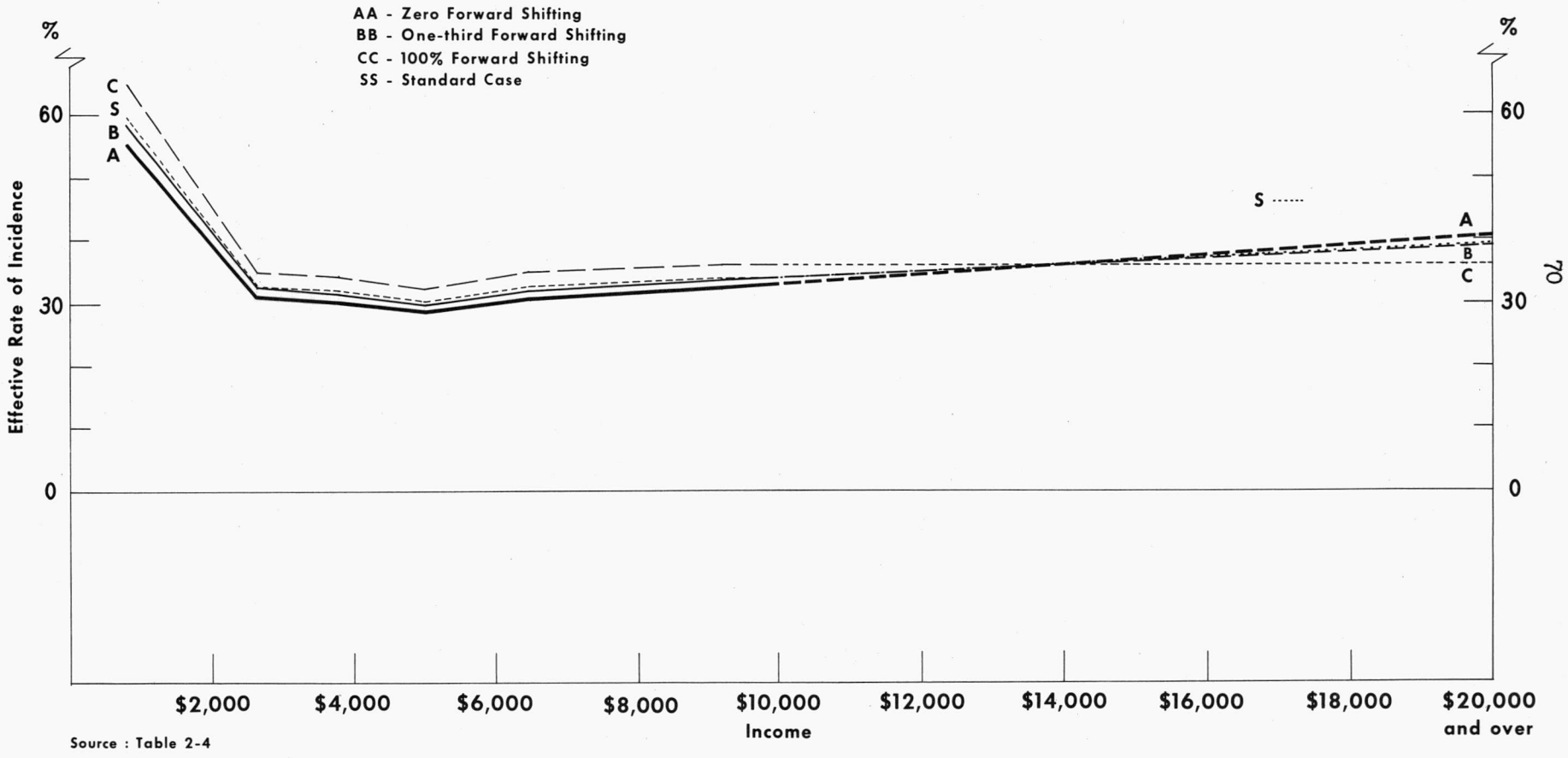
*/ Using the "broad income" base.

Note: Corporate income tax adjustment: A assumes zero shifting to consumers; B assumes one-third shifting; and C assumes complete shifting. Sales tax adjustment; A assumes one-third shifting backwards to factors; B assumes two-thirds backward shifting; and C assumes complete shifting to factors; Property Tax Adjustment: A assumes complete shifting of the portion of tax falling on renter-occupied housing units to the landlord; and B assumes half is shifted to the tenant, the remainder falling on the landlord.

Source: Table A-9.

Chart 2-2

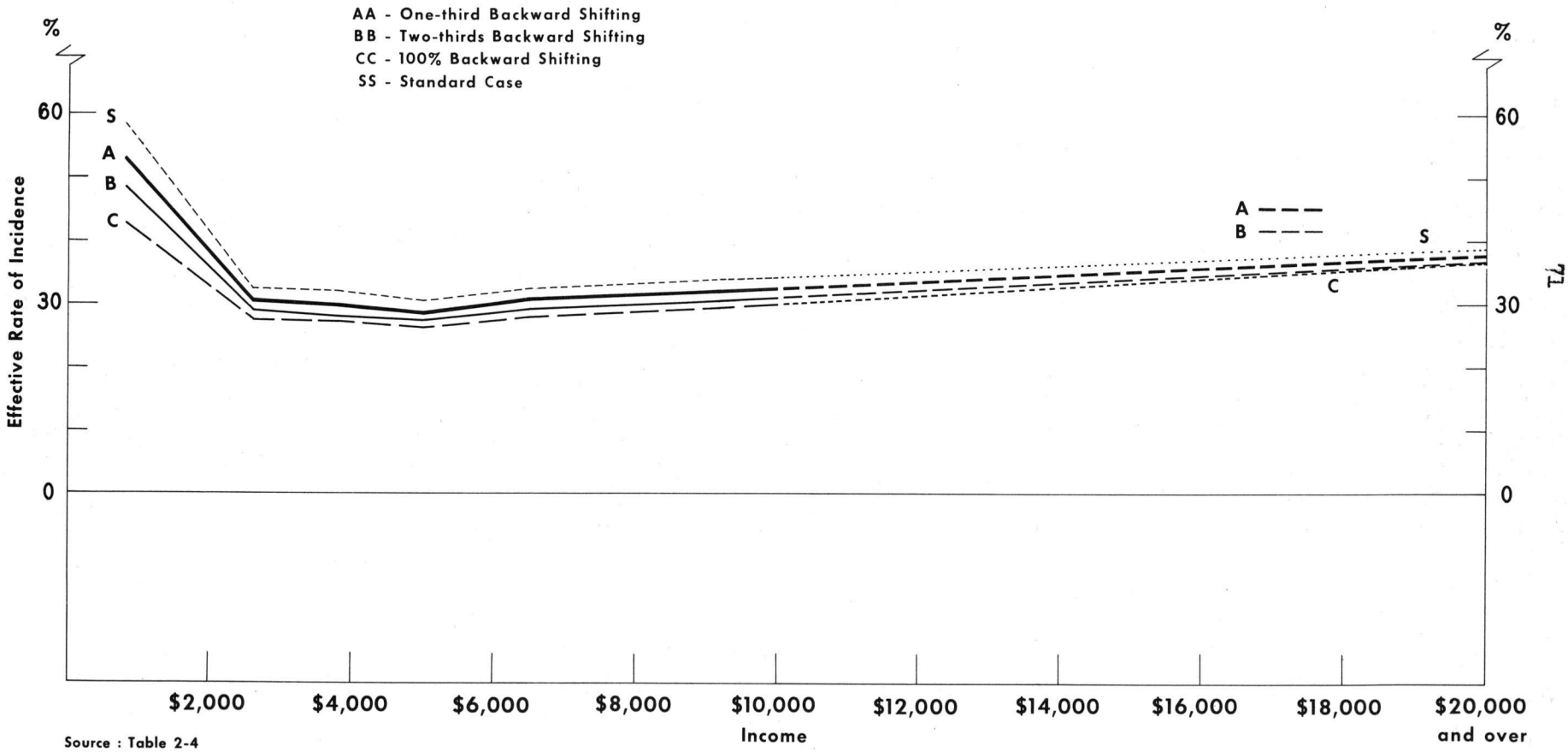
EFFECTIVE TOTAL TAX INCIDENCE FOR CORPORATE INCOME TAX ADJUSTMENT USING THE "BROAD INCOME" BASE



Source : Table 2-4

Chart 2-3

EFFECTIVE TOTAL TAX INCIDENCE FOR SALES TAX ADJUSTMENT USING THE "BROAD INCOME" BASE



Source : Table 2-4

Alternative A assumed the entire portion falls on the landlord, and Alternative B assumes that half falls on the landlord, with the remainder being borne by the renter.

In conclusion, it seems that the standard pattern of total tax incidence is not affected by the use of alternative shifting assumptions. The schedule of effective tax incidence for the total tax structure is regressive up to an income level of at least $3,000, and possibly $5,000, and mildly progressive beyond.

The next adjustment is to consider the substitution of a hypothetical individual income tax series for the series used in deriving the standard pattern of total tax incidence. There are grounds to suspect that the 1959 Survey of Consumer Finances has understated the individual income tax. Moreover, a close examination of the available data suggests that the share of the upper bracket income tax has been understated. The limitations of the underlying data sources have been mentioned elsewhere, but it has not been thought desirable to correct or adjust a given series. However, the weight of the importance of the individual income tax in this study suggests that we examine the matter more closely. This examination is carried out in the Appendix.40/

Assuming that the understated share of the individual income tax is entirely allocable to the open-end upper income bracket—this would be an extreme upper limit—the new schedule of tax incidence becomes much more progressive over the upper income brackets. The pattern of "effective" tax rates, given this hypothetical individual income tax, is set forth in Table 2.4, line 9. To the extent that the understatement of the individual income tax is not entirely located in the highest income bracket, then the

hypothetical indiviual income tax results in an overstatement of progression among the upper income brackets. And if the understatement of income tax were neutrally distributed (implicitly assumed for the standard pattern of tax incidence), then the hypothetical pattern would be similar to the standard pattern.

As it is unlikely that the entire understatement occurs in the highest income bracket, the upper bracket progression of the hypothetical individual income tax can be considered as no more than an upper limit on progression.

In fact, the implicit assumption of a random distribution of the income tax understatement for the standard pattern is probably as reasonable as any other. However, to the extent that the understatement is more heavily weighted toward the upper income brackets, then the empirical evidence presented in this study underestimates upper bracket progression. This qualification does not alter the general pattern of total tax incidence which is progressive over the upper brackets anyway, but it does increase the degree of progression between the "under $10,000" income brackets and the "over $10,000" income bracket.

The final adjustment is to allow for a hypothetical realized capital gains component in the income base. In the introduction it was noted due to the lack of sufficient data, that the underlying income bases could not include an estimate of the income from the sale of assets. In the appendix to this chapter a hypothetical situation is described where, on the basis of United States data, an imputation of realized capital gains income is made. 41/ The schedule of total tax incidence for the "broad income" base, including realized capital gains, is set forth in line 10, Table 2.4.

The unequal distribution of capital gains income accounts for the reduction in progression at the upper end of the income scale. This is another qualification to the standard pattern of tax incidence. Capital gains are a proper component of income as we have defined it. Our hypothetical estimate may not necessarily reflect the true estimate of realized capital gains, but it does point up the fact that the standard estimate of tax incidence overstates progression in the upper income range.

In conclusion, it seems that the use of the available series for the individual income tax and the absence of realized capital gains income in the "broad income" base, may understate and overstate, respectively, the progression in the total tax pattern over the upper income ranges. There is no reason to believe that these two opposing tendencies will cancel each other out. On the other hand, they do not invalidate the standard pattern of tax incidence, but merely increase the margin of error surrounding the upper income bracket effective tax rate.

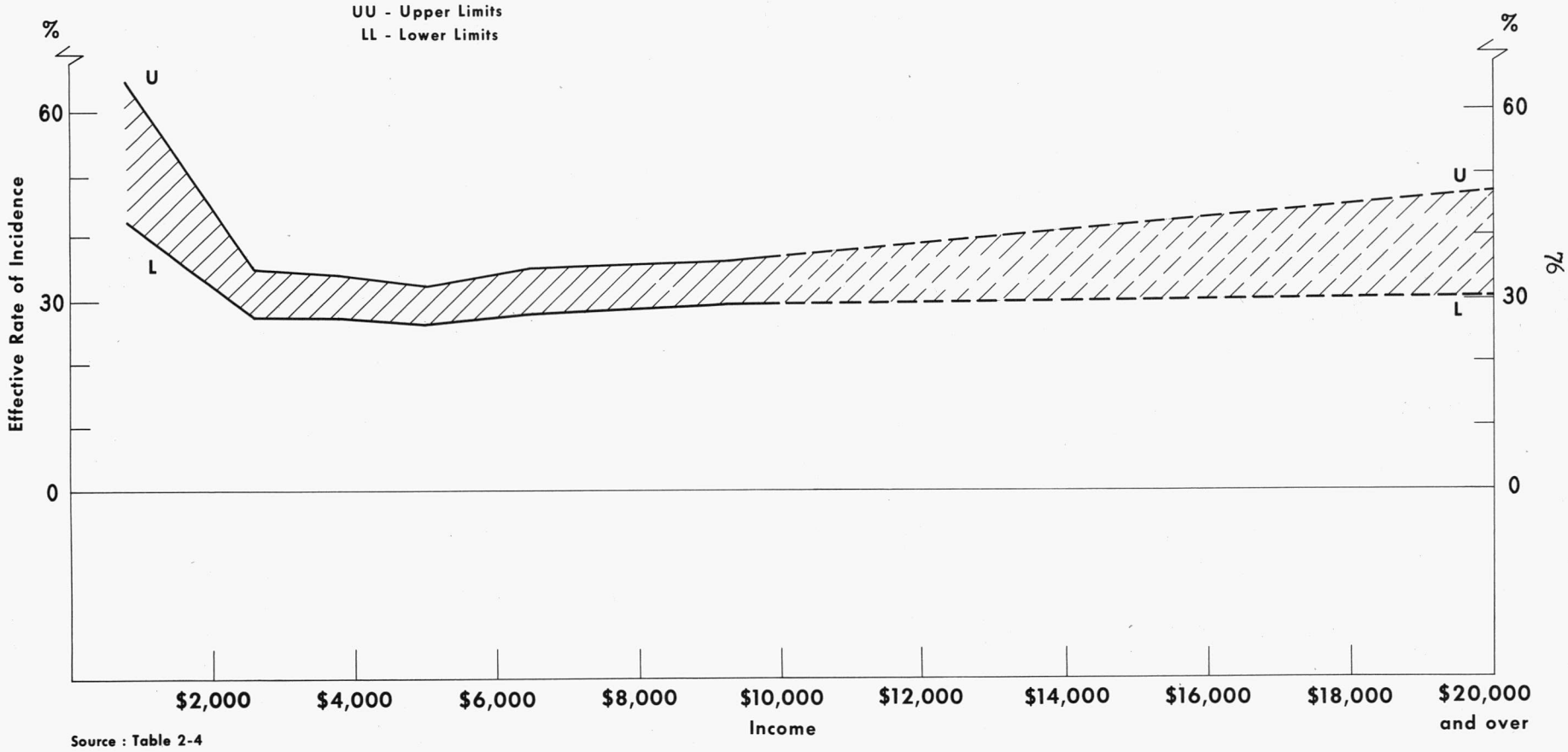
Chart 2.4 encompasses all the adjustments discussed above. It provides a set of limits which include the results for all alternative shifting assumptions, the hypothetical individual income tax adjustment, and the capital gains adjustment. It is fairly clear that the general pattern follows the contour of the standard pattern, that is, the total tax incidence is regressive up to an income level of approximately $5,000, and is progressive beyond.

CONCLUSIONS

This chapter has attempted to estimate the incidence of the total tax structure. Given certain assumptions as to the incidence of various taxes, these taxes were allocated to income classes. The distribution of tax payments, so derived, was then expressed as a percentage of the distribution of several income bases. The pattern of incidence that emerges from the calculations—even allowing for an unknown margin of error—is quite clear; the total tax incidence is regressive up to an income level of at least $3,000 (using the "adjusted broad income" base), and possibly $5,000 (using the "broad income" base), and progressive beyond. The degree of progression between $5,000 and $10,000 does not seem to be extremely severe.

Chart 2-4

EFFECTIVE TOTAL TAX INCIDENCE WITHIN LIMITS OF THE ALTERNATIVE SHIFTING ASSUMPTIONS USING THE "BROAD INCOME" BASE



Source : Table 2-4

REFERENCES

1/ Among an extensive U.S. literature in this field see: G.A. Bishop, "The Tax Burden by Income Class, 1958", National Tax Journal, vol. 14, No. 1, 1961, pp. 41-58; Richard A. Musgrave, J.J. Carroll, L.D. Cook, and L. Frane, "Distribution of Tax Payments by Income Groups: A Case Study for 1948", National Tax Journal, vol. 4, No. 1,1951, pp. 1-53 (Musgrave 1951), Richard A. Musgrave, "The Incidence of the Tax Structure and its Effects on Consumption", Federal Tax Policy for Economic Growth and Stability, Joint Committee on The Economic Report, 84th Congress, 1st Session, U.S. Congress, November 9, 1955, pp. 96-113 (Musgrave 1955), and "Estimating the Distribution of the Tax Burden", (unpublished paper, August, 1961) (Musgrave 1961); Mabel Newcomer, "Estimate of the Tax Burden on Different Income Classes", Studies in Current Tax Problems, The Twentieth Century Fund, New York, 1937, pp. 1-52; Peter Newman, "An Empirical Study of the Distribution of the Tax Burden in the United States, 1955-1959", (unpublished paper, September 1961); Helen Tarasov, "Who Pays the Taxes?", Temporary National Economic Committee, Monograph No. 3, Washington, D.C., 1941; and Rufus S. Tucker, "Distribution of Tax Burdens in 1948" (Proceedings of the 45th Annual Conference on Taxation, National Tax Association, 1952, pp. 195-203, National Tax Journal, vol. 4,1951, No. 3, pp. 269-285.

For the Canadian tax structure see: Irving Jay Goffman, The Burden of Canadian Taxation: Allocation of Federal, Provincial and Local Taxes Among Income Classes, Canadian Tax Foundation, Canadian Tax Paper No. 29, Toronto, July 1962, (Goffman 1962) where the distribution of taxes is estimated for the year 1957. While our study follows Goffman, close comparability is not to be expected owing to (1) improved statistical series for income and consumer expenditures; (2) a broader definition of taxes examined; (3) different hypotheses with respect to the incidence of several taxes.

2/ Musgrave 1961, p. 2.

3/ Notable exceptions are: Musgrave 1958 and Goffman 1962.

4/ See above: Chapter 1, reference 26.

5/ As a rough check we multiplied the total tax declared by selected Canadian industries (given in Department of National Revenue, 1963 Taxation Statistics, Queen's Printer and Controller of Stationery, Ottawa, 1963, pp. 113-114 in 1961 by the ratio of non-resident investment to total investment in selected Canadian industries (given in D.B.S., The Canadian Balance of International Payments, and International Investment Position for 1961, Table XV) for all manufacturing, petroleum and mining industries. When the resulting foreign tax shares were summed and expressed as a per cent of the total declared tax in these industries, it differed from the share

5/ cont'd

of non-resident investment in these industries by less than one per cent. This method, in itself, is just an approximation, as the industrial classification between the two sources is not strictly comparable. Nevertheless, it does suggest that our method is not grossly inappropriate.

6/ As a result 18 per cent of those sales taxes that apply to exportable consumption goods are subtracted in Table 2.1. See: D.B.S., 1961 National Accounts, op. cit., the ratio of the value of goods exported (Table 55) to the value of gross domestic product (Table 21) is used to estimate the export share.

7/ Musgrave 1959, pp. 243-245.

8/ There is some reason to doubt the accuracy of the individual income tax series. Consequently an alternative series was essayed below, the discussion of which appears under the heading, a hypothetical individual income tax; and the computations of which are described in the appendix. (See the notes to Table A-9).

9/ William J. Baumol, Economic Theory and Operations Analysis, Prentice-Hall, Englewood Cliffs, N.J., 1961, pp. 198-205.

10/ See, for example: M.A. Adelman, "The Corporate Income Tax in the Long Run", The Journal of Political Economy, Vol. 65, No. 2, 1957, pp. 151-157; E. Gary Brown, "The Corporate Income Tax in the Short Run", National Tax Journal, Vol. 7, 1954, pp. 240-241; John C. Clendenin, "Effect of Corporate Income Taxes on Corporate Earnings", Taxes—The Tax Magazine, Commerce Clearing House, Inc., Vol. 34, No. 6, 1956, pp. 391-396; Challis A. Hall, Jr., "Direct Shifting of the Corporation Income Tax in Manufacturing", American Economic Review, Papers and Proceedings, Vol. LIV, No. 3, May 1964, pp. 258-271; Arnold C. Harberger, "The Incidence of The Corporation Income Tax", The Journal of Political Economy, Vol. 70, No. 3, 1962, pp. 215-240; and "The Corporation Income Tax: An Empirical Appraisal", Tax Revision Compendium, Vol. 1, Committee on Ways and Means, United States, Government Printing Office, Washington, D.C., Nov. 16, 1959, pp. 231-250; Eugene M. Lerner, and Eldon S. Hendriksen, "Federal Taxes on Corporate Income and the Rate of Return on Investment in Manufacturing, 1927 to 1952", National Tax Journal, Vol. IX, No. 3, 1956, pp. 193-202; M. Krzyzaniak and Richard A. Musgrave, The Shifting of the Corporation Income Tax, An Empirical Study of its Short-Run Effect Upon the Rate of Return . The Johns Hopkins Press, Baltimore, 1963; and B.U. Ratchford and P.B. Han, "The Burden of The Corporate Income Tax," National Tax Journal, Vol. 10, No. 4, 1957, pp. 310-324.

11/ See the study by Robert Lévesque, "Shifting of the Corporate Income Tax", a study prepared for this Commission.

12/ Even with the liberal producers' goods exemption, this class of commodities is estimated to have accounted for almost one third of the revenue from the manufacturers' sales tax: John F. Due, The General Manufacturers Sales Tax in Canada, Canadian Tax Papers, No. 3, Canadian Tax Foundation, Toronto, 1951, p.145.

13/ For a full discussion of provincial retail sales taxes, see: John F. Due, Provincial Sales Taxes, Canadian Tax Papers, No. 7, Canadian Tax Foundation, Toronto, 1953, and Sales Taxation, Routledge & Kegan Paul, London, 1957, pp. 272-289.

14/ These proportions, which purport to allow for the exemptions and exclusions of the various tax bases, are merely educated guesses of the author. It was believed desirable to make an explicit attempt to allow for, rather than ignore the exemptions. It has been shown that the burden pattern is significantly affected only when food purchases are excluded or included - they are excluded here. See, David G. Davies, "An Empirical Test of Sales-Tax Regressivity", The Journal of Political Economy, Vol. 67, No. 1, February 1959, pp. 72-78.

15/ It can be shown that in an equilibrium setting, devoid of money or tax illusion, and disregarding the effect of price level changes on the real value of claims, changes in absolute prices—via alternative monetary assumptions—are merely the vehicle by which relative price changes are effected. See R.A. Musgrave, The Theory of Public Finance, op. cit, pp. 364-371, and 379-380.

16/ Ibid., p. 359.

17/ Musgrave 1961, p. 12.

18/ Earl R. Rolph, The Theory of Fiscal Economics, University of California Press, Berkeley and Los Angeles, 1956; Earl R. Rolph and George F. Break, Public Finance, Ronald Press Company, New York, 1961; George F. Break, "The Incidence of Consumption Taxes", 1961 Proceedings of the 54th Annual Conference on Taxation, National Tax Association, Pennsylvania, 1962, pp. 625-632.

19/ Loc. cit.

20/ John F. Due, Government Finance—An Economic Analysis, Revised Edition, Richard D. Irwin Inc., Homewood, Illinois, 1959, pp. 306-309, and Musgrave 1961, p. 12.

21/ This point was discussed in a recent conference on Taxation: see the paper by D.H. Eldridge, "Equity, Administration and Compliance, and Inter-governmental Fiscal Aspects", The Role of Direct and Indirect Taxes in the Federal Revenue System, A conference Report of the National Bureau of Economic Research and The Brookings Institution, Princeton University Press, Princeton, 1964, pp. 141-215.

22/ For this purpose we employ a distribution of all factor incomes (Table A-1 line 29).

23/ See Table 2.4. When it is assumed that sales and excise taxes are borne by the factors of production in proportion to their factor incomes, then a foreign share must be deducted to allow for factor incomes accruing to non-residents through non-resident ownership of investment in Canada. The 34 per cent of non-resident ownership of investment income in Canada becomes 7 per cent of total factor incomes (Table A-4 and Chapter 2, reference 26).

24/ The property tax has long been considered a regressive element in the tax structure, and the few empirical investigations of the distribution of the tax tend to support this contention. See, for example: Musgrave 1951, p. 37, and Gerhard N. Rostvold, "Property Tax Payments in Relation to Household Income: A Case Study of Los Angeles County", National Tax Journal, Vol. XVI, No. 2, June 1963, pp. 197-200, and Goffman 1962, p. 21.

In Canada the property tax is primarily a tax on real estate, and it has been treated as such in the discussion of the text.

Out of a total property tax yield of $1,391 million in 1961 (D.B.S. Financial Statistics of Municipal Governments, 1961, Queen's Printer, 1964, Table 9) the personal property tax yield is $12 million. We have chosen to include the personal property tax with the real estate property tax to simplify the following discussion.

25/ Two points can be mentioned in this connection: first, assessed property values are based on "market Value", not on the "capital stock invested in" the various types of property; secondly, certain types of property are assessed at different percentages of market value (in the western provinces it is customary to assess land at 100% of its market value, and improvements at less than 100%, the average assessment value being 66%: D.B.S., Principle Taxes and Rates, 1962, Cat. No. 68-201, Queen's Printer, Ottawa, 1962, pp. 18-27. In addition, some farm buildings may be assessed at a zero rate of market value, while special concessions to business property may reduce the effective rate on this kind of property). For a more complete discussion of the municipal property tax in Canada, see, F.H. Finnis, Real Property Assessment in Canada, Canadian Tax Papers, No. 30, Toronto, 1962, and J. Harvey Perry, Taxation in Canada, third edition, Canadian Tax Foundation, University of Toronto Press, Toronto, 1961, pp. 256-268.

26/ For example, compare with Musgrave 1951, and Goffman 1962.

27/ Earlier estimates suggest a land value which is 10% of the total residential real estate (O.J. Firestone, Residential Real Estate in Canada, University of Toronto Press, Toronto, 1951, pp. 431-433 and 7; and Canada's Economic Development, 1867-1953, Income and Wealth, Series VII, Bowes and Bowes, London, 1958, p. 350). Difficulties in estimating the value of land, and reservations about the methods used led to the discontinuance of the series. It is felt that a land value of 20% is more in line with current-day values. We have made use of this 20% assumption, recognizing that a healthy degree of personal judgment is involved.

28/ Due to the prevalence of agricultural prices that are set by price-support programmes or international markets, it may be extremely difficult to shift forward the property tax on farm improvements. When it is assumed that the tax is absorbed by the farmer, there is no significant change in the total empirical results. The distribution of effective tax rates for the total tax structure (using the "broad income" base) becomes —by increasing income class: 59.8%, 33.1%, 32.3%, 30.5%, 32.8%, 34.2%, 38.5% and 34.7%. The reader can compare this with line 18, Table 2.3.

29/ Those portions of the property tax falling on non-residents are excluded from the analysis.

30/ D.B.S. National Accounts 1961, op. cit. A detailed breakdown of income sources was provided by D.B.S., and it is the source for all 1961 income components used throughout this study.

31/ "Covered" wages are those that are covered by the unemployment insurance programme.

32/ While it would be ideally more accurate to distribute the tax by total consumption of imported products, it is unlikely that our use of total consumption will grossly distort the final results; the additional accuracy to be gained from using such a series did not seem to justify the additional work in estimating the series, consumption of imported products.

33/ If all import duties were on producers' goods, then, at most, 18 per cent of these duties would be assumed to be exported. As import duties are approximately 6 per cent of all tax payments, the total tax amount would decrease by only one per cent. As the average effective tax rate for all taxes is 35 per cent (Table 2.3), this rate would decrease by less than half of one per cent. The level, then, would be unaffected by this more complete treatment. As it is clear that not all import duties are on producers' goods, the difference would be even smaller.

34/ The municipal business taxes include: business taxes, municipal sales taxes, poll and amusement taxes. We treat them similarly to the sales tax and allocate them by a distribution of total consumption.

The business tax is actually a personal property tax levied on plant and equipment, although it may use a different base for the computation of rates. Besides real value and varying percentages thereof, the base for the business tax may be: rental value, value of stock-in-trade or area of premises occupied (see: D.B.S., Principle Taxes and Rates, op. cit.). We assume this tax is in the nature of a business tax on cost and, consequently, it is shifted forward to consumers.

35/ Resource revenues of $166 million can be designated as similar to tax rental payments; we have allocated $110 million only to Canadian families; the remainder is assumed to be borne by foreigners. Revenues of $116 million can be designated as similar to royalties; we have allocated $95 million to Canadian consumers, the remainder being borne by foreigners.

36/ Some provincial taxes vary as follows: the individual income tax for 1964, from 18% of federal tax to 24% (Manitoba and Saskatchewan); the corporate income tax, from 9% of corporate taxable income allocable to the province to 12% (Quebec); retail sales tax, from zero (Manitoba and Alberta) to 6% (Quebec); motor fuel oil tax per gallon, from 12¢ (Alberta) to 19¢ (Newfoundland and Nova Scotia): See: D.B.S., Principle Taxes and Rates, 1964, Public Finance and Transportation Division, Cat. No. 68-201, Queen's Printer, Ottawa, 1964, pp. 8-17.

37/ See: **Table A-7.**

38/ 21.7 per cent of all families reside in the "under $2,000" income bracket, and 12.1 per cent reside in the "$2,000-2,999" income class; if one accepts the regressiveness up to an income level of $5,000, then 62.0 per cent of all families are affected (Table 1.3).

39/ When the "adjusted broad income" base is used, the assumption of complete backward shifting results in a somewhat mitigated regressivity over the lower income brackets. While we do not think that there is a high probability of complete shifting to factor incomes, it is recognized that if there is, the standard empirical results are qualified as to the degree of regressiveness over the first two income classes. However, the nature of provincial retail sales taxes is such that it is extremely unlikely that they are shifted backward to factor incomes. This would automatically keep the backward shifting below 100 per cent.

40/ See: notes to line 9, Table A-9.

41/ See: notes to line 10, Table A-9.

CHAPTER 3 — THE EFFECT OF GOVERNMENT EXPENDITURES ON THE DISTRIBUTION OF INCOME

THE INCIDENCE OF PUBLIC EXPENDITURES

Rationale for the Estimation

The preceding chapter has examined the total tax incidence in the Canadian economy. Before proceeding to an estimation of the incidence of the expenditure side of the public sector, it is necessary to examine more fully the rationale for such an investigation.

From a theoretical point of view there are two compelling reasons to examine the incidence of public expenditures: (1) to be complete and consistent, any theory of the public sector of the economy must include, not only taxes, but public expenditures as well; and (2) to omit public expenditures in estimating the effect of the public sector in redistributing income is tantamount to implicitly assuming that they are distributed in a certain manner. First, consider the theory of the public sector which is the underlying framework of this investigation. Taxes are the means by which command over resources is transferred from the private sector to the public sector in order to provide those goods and services that satisfy wants which are incapable (or less capable) of being satisfied by the private sector.

Taxes exist, in other words, to provide public expenditures. This is a fairly obvious fact. It is necessary, however, to draw attention

to the above statement because it contains a complete and consistent theory of the public sector, and any thorough examination of the public sector must recognize the interdependence of both sides of the fiscal system—taxes and expenditures. A recognition of the dual aspect of the public sector requires that we examine the effects of government expenditures on the distribution of income. 1/

Next, consider the implications of omitting an examination of the benefits from government expenditures in an investigation into the redistributive effects of the public sector. If the expenditure side is omitted then, logically, one can conclude nothing about the redistribution of income. However, on the basis of information about the effective tax burden, implications for the redistribution of income are often made. 2/ These implications are valid only if it is implicitly assumed that the benefits from government expenditures are distributed in a particular manner—proportional to income. In other words, we cannot ignore the public expenditure side of the fiscal system and say anything about the redistribution of income; as soon as we do talk about redistribution, we are implicitly—and rather arbitrarily—assuming that public expenditures are distributed proportional to income.

Now, it may be that benefits from government expenditures are distributed proportional to income; it also may well be that these benefits are distributed equally per family, or proportional to property income. All of these suppositions are hypotheses (which may or may not be capable of empirical refutation), which, with some qualification, can be properly integrated into an investigation of this sort. The point is that a complete and objective study must consider such alternatives. If the final

conclusions as to the redistribution of real income are qualified by a range of probable values, then while there is a loss of precision, it does not necessarily reduce the meaningfulness of such a study. 3/, 4/.

This chapter does examine the effect of the expenditure side of the public sector on the distribution of income. Since it has been customary to ignore this aspect of the problem, it may be advisable to briefly consider why it was not thought necessary to examine the expenditure side of the fiscal system. In general, the benefit side of the public sector was ignored because of: (1) the rejection of the quid pro quo benefit theory relating each individual's benefits with his taxes paid; 5/ and (2) the empirical difficulty of imputing shares in a common benefit (such as national defence), to individual citizens. Clearly, if the underlying individual quid pro quo relationship were unsatisfactory, there was nothing to be gained by empirically attempting to measure the benefits. This leaves us in the situation where all taxes are treated as a subtraction from income, with each individual receiving zero benefits from public services; for the total community, the aggregate benefit from public services is zero. In such a world (assuming, that is, a properly functioning voting mechanism for making known the preferences of voter-citizens) there is no reason why the citizens would continue to support their government. In other words, if one ignores the benefits from government expenditures it is difficult to explain the existence of the public sector.

This is clearly unacceptable. It seems that in the aggregate all families do derive benefits which correspond in value with the aggregate taxes paid. In other words, the benefit theory can be reinterpreted so as

to apply to the total taxes paid by the community, in conjunction with the evaluation by all families of the aggregate benefits received by the community. And if all families in the aggregate receive benefits, then in some manner or other each individual family must receive at least some benefit. 6/ In fact, it is the objective of this chapter to determine, as completely as possible, just how each individual family benefits.

We have stressed at some length that it is theoretically necessary to consider the expenditure, as well as the tax, side of the public sector. From a policy point of view, it is also necessary to examine the incidence of public expenditures. It is the economist's function to determine as nearly as possible the total effect of the public sector on the distribution of income—in other words, to provide an estimation of the degree of income redistribution effected by the entire fiscal process. It is not merely enough to estimate the effect of taxes in redistributing income. The economist must provide the policy maker with as accurate a picture of the actual state of redistribution as is possible—even given several untested alternative hypotheses concerning the distributive effect of general non-allocable expenditures. This is necessary in order to insure that: (1) if the actual income redistribution differs from the desired income redistribution, the necessary steps to correct this imbalance will be taken; and (2) given the desired degree of income redistribution, any proposed change in the structure of government expenditures must be accompanied by a commensurate change in the structure of tax payments. Thus, it is to be hoped that the findings of this chapter will be every bit as useful as the findings of the previous chapter in providing the policy maker with

a set of guidelines within which any given redistribution policy can be developed and carried out.

General Methodology

While several attempts—varying in scope and methodology—have been made to estimate the distribution of benefits from government expenditures in the U.S. and the U.K., no such investigation has been made of public expenditures in Canada. 7/ In dealing with the expenditure side of the public sector, we may distinguish first of all, between two types of expenditures—transfer payments and expenditures on goods and services. Transfer payments can be considered as negative taxes (e.g., negative lump sum taxes, income taxes, and excises) and treated analogously. They may stay put or they may be shifted, and we encounter the same level of argument as in the analysis of tax incidence. In fact, in some cases, the incidence or distributional result is an important policy objective. Some transfer payments are instruments to effect income redistribution every bit as much as the progressive individual income tax. In some cases the redistribution is not meant primarily to be by income bracket, but by specific socio-economic characteristic (e.g., unemployment benefits redistribute incomes from the working to the non-working, family allowances redistribute income from childless to child-bearing families, and old age pensions redistribute income from the middle-aged to the elderly). Since most of those groups to whom income is redirected are more heavily concentrated among the lower income brackets than is the average taxpayer, redistribution by socio-economic characteristic becomes effective redistribution by income class. Theoretical hypotheses concerning the incidence of these transfers will be examined in some detail in later sections.

Public expenditures on goods and services result in a distributional effect on incomes which arises because of the nature of these "free" goods. 8/ This provision of a "free" good by the government has some effect on the income position of each family within a given political boundary. 9/ It is necessary to analyze the incidence of such public expenditures and to formulate reasonable hypotheses that can be integrated into this analysis.

This task is not quite so straightforward as examining the incidence of transfer payments; the difficulty arises out of (1) the family's evaluation of benefits received from the public expenditure, and (2) the cost to the government of providing the public expenditure. In other words, we are faced with two alternative approaches. First, we could consider the distribution of the "costs incurred on behalf of" various families. If the government provides a service which benefits one group of families, then one could distribute the average cost per family to this group of families.

Secondly, we could consider the distribution of "benefits received" by various families. If one could determine the valuation that each family places on the public expenditures that it receives, then one could allocate the "benefits received" in proportion to this distribution. Ideally, this approach would be preferable; however, the estimation problems are virtually insuperable, and the former approach, while a compromise, may not diverge too far from the actual pattern that would ensue from knowing the distribution of "benefits received".

The difference between these two approaches can be made explicit with the help of the following example. Let us assume that there exists a swamp that breeds nasty bugs that infect the cattle grazing on three

neighbouring farms. Each nasty bug has the same likelihood of causing infection, and each infected animal has the same likelihood of dying. The mortality: morbidity ratio is less than one. The profit of each farmer is smaller by some amount than it might be in the absence of the swamp. Let us also assume that each farmer possesses a demand curve for swamp eradication which lies completely below the cost of providing any number of units of swamp eradication. 10/ Each farmer also realizes that his neighbours would share in the benefits of a swamp-eradication programme. It is recognized that a "social want" exists that can be satisfied only by joint action of some kind. The three farmers combine to form a joint farm committee for the explicit purpose of eradicating the nasty bugs responsible for their reduced profits.

The joint farm committee accumulates the following data:

1. Each farmer's true demand curve (all farmers freely reveal their preferences via their demand schedules) 11/ for swamp eradication is as follows:

Demand for Swamp Elimination

Units of Swamp - Elimination Demanded	Price that Each Farmer Is Willing to Pay			Price that the Joint Farm Committee is Willing to Pay
	Farmer 1	Farmer 2	Farmer 3	
1	$ 1	$ 3	$ 5	$ 9
2	0	2	4	6
3		1	2	3
4		0	1	1

2. The farm community demand curve is obtained by adding vertically the individual demand curves.

3. An engineer estimates the average cost (which we assume equals the marginal cost) of providing one unit of swamp eradication to be \$6.

4. An economist advises the joint farm committee to undertake a swamp-eradication project capable of supplying two units to all farmers at an average per farmer cost of \$2, the average cost to the farm community being \$6.

The joint farm committee acts.

Now expenditures made by the joint farm committee on behalf of the three farmers are as follows: c_1 = \$2; c_2 = \$2; and c_3 = \$2 (c = "expenditures made on behalf of" = "costs incurred on behalf of") whereas benefits received (as reflected in the price which each farmer would pay to purchase two units of swamp-eradication) are: b_1 = \$0; b_2 = \$2; and b_3 = \$4. (b = benefits received). Ideally we would like to be able to estimate the benefits received by each individual; however, this calculation depends on each farmer's revealed demand curve, a phenomenon that rarely exists in the public sector of the economy. This, in fact, is a major stumbling block of public finance; it is clearly beyond the scope of this investigation to estimate demand curves—the underlying preferences of which are not revealed—of each group of consumers for public services which are necessary to satisfy each social want.

This limitation prompted us to adopt the more manageable approach of examining "costs incurred on behalf of" various families. This is not so serious a limitation as it might at first appear. To the extent that the benefits of public good x_1 accrue solely to a specific group of families, and to the extent that the participants of the beneficiary group are similar in their income-earning or income-using characteristics,

then it is likely that their demand schedules will be similar. If this were the case, then the differences in price which the three farmers in the above example would have been willing to pay would almost disappear; as this happens the distribution of b's would approach the distribution of c's, and the two methods would coincide.

If the benefits accrue to several beneficiary groups, then to the extent that we can clearly delineate the magnitude of benefits to each group, the comments above apply. To the extent that the relative division of benefits among groups is not at all clear, the limitation becomes more restrictive.

In the discussion to follow, we are going to examine the costs of providing any particular public expenditure. These costs, incurred on behalf of certain families (e.g., the three farmers), are treated as additions of non-money income to money income. It is not assumed that these families would incur the costs themselves; 12/ it is assumed only that the cost of two units of flood control is similar to an augmentation in the real income of the individual on whose behalf the expenditure is made. It becomes necessary to determine:

(1) those beneficiary groups on whose behalf the expenditure is made;
(2) the average cost of providing each group with the service; and
(3) the distribution of the families within each beneficiary group by size classes of income.

The main emphasis in this chapter is on those public expenditures, called "specific"or "allocable", the cost of which is incurred on behalf of clearly delineated beneficiary groups (of consumers or factors). Then too, there are some public expenditures, such as national defence which

are indivisible or unallocable by specific beneficiary groups. These expenditures are henceforth referred to as "general." To the extent that the benefits of these expenditures accrue, in some method or other, to all families, there is no clear-cut basis on which to distribute them. We employ several alternative assumptions in this study (e.g., per capita, per total income, etc.), in the belief that their distributive effects, even if only probable effects—the result of several untested hypotheses—must explicitly be taken into account, for the same reasons that it is necessary to examine the entire expenditure side of the public sector. Besides, without some such approach, it is impossible to allocate a significant portion of government expenditures. In addition, the complete expenditure side of the fiscal system must be accounted for in order to accurately estimate the true net pattern—our measure of fiscal incidence.

It remains to mention an additional assumption implicit in our treatment of public expenditures. The nature of this investigation requires that the value of total benefits received be equal to the total costs of public expenditures. In other words, it is necessary to assume that (1) no consumers' surplus is enjoyed, which, in the aggregate, exceeds the value of all public expenditures; and (2) there is no waste in the provision of public goods by the government. It is highly likely that the latter assumption will raise more objections than the former.

However, it is somewhat puzzling to explain this asymmetrical attitude, especially when we confine ourselves to the theoretical model underlying this investigation. There, as the reader will recall, families had some voting mechanism that allowed them to determine the scope and nature of the optimal public sector. Consequently the means exist by which

benefits can be equated with costs by the elimination of those expenditures with a zero benefit (wastes).

Now it may well be that an actual country differs from the theoretical, optimally run, economy discussed before; but it is still true that a mechanism—however imperfect—exists whereby zero-benefit expenditures (waste) can be, if not eliminated, at least reduced to a minimum. How much waste remains in the provision of public goods is an empirical question that is clearly beyond the scope of this study.

The Selection of Public Expenditures

The estimation of the effective incidence of all government expenditures is carried out in three stages. First, the expenditures to be included in the study are regrouped by a convenient functional breakdown. The next step is to allocate these expenditures to income brackets based on various assumptions as to the distribution of the costs incurred on behalf of beneficiary groups. Finally, the distribution of expenditures is expressed as a percentage of the several income bases to bring about a schedule of effective expenditure rates.

The expenditures that were used in this study are set forth in Table 3.1. The data are for 1961, and include all expenditures, except several minor items, that could not be readily allocated. Table 3.1 sets forth the public expenditures by functional category that are examined in this section. The table is derived from the D.B.S., Consolidation of Financial Statistics, with certain adjustments to render it more useful for our purposes. 13/ First of all, it is necessary to explain just how intergovernmental transfers (grants or subsidies) are treated. The official published statistics exclude all general grants (unconditional grants),

TABLE 3.1

TOTAL PUBLIC EXPENDITURES, 1961 */

Item	Federal (1)	Provincial & Municipal (2)	All Levels Amount (3)	All Levels Per cent (4)	Total Expenditures, Net of Exported Share 1/ (5)
	Millions of Dollars				Millions
Specific Expenditures					
Highways	89	973	1,062	8.8	1,000
Other Transportation 2/	306	5	311	2.6	311
Education	93	1,727	1,820	15.2	1,820
Health & Sanitation	366	846	1,212	10.1	1,202
Social Welfare & Veterans	2,266	464	2,730	22.7	2,730
Agriculture Expenditures	295	77	372	3.0	372
Interest Payments	653	184	837	7.0	546
"General" Expenditures 3/	2,646	1,144	3,790	30.4	3,790
TOTAL EXPENDITURES	6,714	5,420	12,134	100.0	11,771

*/ For all levels of government: Intergovernmental transfers are deleted (unconditional grants are excluded from the expenditure side of the paying government's account and the revenue side of the receiving government's account; conditional grants and shared-cost contributions are excluded from both the revenue and expenditure of the receiving government's accounts but included in the expenditure side of the paying government's accounts). The figures are consistent with the definition given in the data source. Federal and provincial expenditures are on a fiscal year basis, and municipal expenditures are on a calendar year basis.

Source: D.B.S., Financial Statistics (With adjustments given in Table A-11(a)). Total government expenditures in the published data source are $12,372 million. From this are subtracted payments to other governments and other items amounting to $892 million. From the National Accounts, such non-budgetary items as unemployment insurance and workmen's compensation of $654 million, are added. The adjusted total, $12,134 million appears in this table. A detailed reconciliation appears in Table A-11(a).

1/ When expenditures assumed to be incurred on behalf of non-residents, and adjustments to interest payments are made, the expenditure total used for the allocation process becomes $11,771 million. The appendix describes these adjustments.

2/ Other transportation includes expenditures on air, rail, and water transport.

3/ "General" expenditures include expenditures on defence and mutual aid, general government, natural resources and primary industries, protection of persons and property, and numerous miscellaneous items outlined in Table A-11(a).

NOTE: Details may not add to totals due to rounding.

subsidies, and tax-sharing payments from the expenditure side of the paying government's budget and the revenue side of the receiving government's budget. We have followed that practice here. 14/ However, conditional grants and shared-cost contributions are not included in either the revenue or expenditure of the receiving government, but they are included in the expenditure of the paying government. In other words, that portion of a joint governmental expenditure project which is expended by the federal government is specifically treated as a federal expenditure under the appropriate expenditure. We have employed the same approach here.

We have made two adjustments to the official statistics. First, Table 3.1 includes those expenditures made out of the Unemployment Insurance Fund and several other government trust funds that are usually classified as non-budgetary items. However, these expenditures, or benefit transfer payments, do have a quantitative effect on the distribution of income, an effect that may or may not be different from the effect of the taxes (or contributions) collected to pay for them. It is clearly necessary to include these expenditures in an examination of the effects of all government actions on the distribution of income. Secondly, we have rearranged the expenditure classification, notably with respect to social welfare and veterans' payments, to render them amenable to the available distributive series. In addition, some of the detailed data that appear in the following discussion are supplemented with information from the National Accounts.

A glance at Table 3.1 indicates that "general" expenditures are the most important category of expenditures. This may be quite misleading, because, to some extent, the magnitude of this category reflects our

inability to treat the component expenditures in any other way. The "general" category includes those expenditures which are clearly unidentifiable by any particular subgroup in the economy, such as National Defence and Justice. It also includes those expenditures, which one might argue, accrue to specific subgroups, but the difficulty of either identifying the group or obtaining a distributive series, makes it difficult to treat them as other than "general." Out of a "general" expenditure of $3,659 million, $2,707 million is expended on national defence, protection of persons and property, and general government.

Social welfare and veterans' benefits are the second largest group of expenditures (23%), followed by education which accounts for 15% of total public expenditures. Highway and health expenditures are almost 10% each, while interest payments on the public debt amount to 7%.

In addition, throughout this chapter, there are some public expenditures which are assumed to be incurred on behalf of consumers. Where this is the case, the item is divided into a foreign and domestic share, on the basis of the ratio of the value of exported goods to the value of total goods produced. This series is used as a basis for determining the share of public expenditures incurred on behalf of foreigners. The foreign share is excluded from column (5), which is the basis of the allocation process. In addition, those interest payments which are paid to foreigners are also excluded. The expenditure items in column (5), Table 3.1, are the amounts used to derive the estimates of total expenditure incidence in this chapter.

We now turn to an examination of the distribution by income class of all government expenditures.

THE ALLOCATION OF PUBLIC EXPENDITURES

Expenditures on Highways and Other Transportation

It is assumed that public expenditures on highways are incurred on behalf of non-highway users and highway users. The former is allocated to non-highway users by a distribution of the value of owned property. The highway user share is allocated partially by a distribution of consumer outlays on passenger travel, and partially by a distribution of consumer outlays on transported products.

At the outset it is necessary to point out that this section relies heavily on data for the United States. 15/ This approach is necessary because of the dearth of useful Canadian statistics; to the extent that the road and street system and travel composition are similar in both countries, the results can be thought to have some useful policy meaning. However, availability of Canadian data (particularly with respect to the incremental cost studies discussed below) would greatly improve the results laid forth here by invalidating or substantiating the American results.

The next step is to explain how we determined on whose behalf highway expenditures are incurred; the cost of providing an improved highway system during a given period of time is then allocated to these groups. In the first place, highways are provided for two main classes of highway users—passenger cars and trucks. 16/ Consider the shifting of benefits from highway expenditures. In the case of the passenger car any cost reduction, concomitant with an improved road, accrues directly to the automobile owner. He now experiences a lower per mileage cost of

operating his automobile, and it is unlikely that he will be forced to pass on this cost reduction to any specific group of factor earners or consumers in the economy. It is assumed that the automobile owner and his family alone enjoy the cost reduction. In a similar vein, the cost incurred by the government in providing (and improving) a highway system for passenger travel is incurred directly on behalf of these "consumers of passenger travel".

Next, it is possible to consider the trucking industry as one portion of the transportation cost involved in the production and distribution of the products of the economy. When an improvement in the road and street system in Canada leads to a reduction in transportation costs, the result is similar to that which would follow the imposition of a negative general sales tax. Given a perfectly competitive economy in a general equilibrium setting, the sales tax is paid by the consumer; 17/ logically therefore, it must be assumed that any general cost reduction is enjoyed by the consumer (of transported products, in this particular case). Consequently, the cost incurred by the government in providing roads adequate to sustain truck transportation is treated as being incurred on behalf of "consumers of transported products". In other words, highway expenditures are made on behalf of "consumers of passenger travel" and "consumers of transported products".

In addition to the costs incurred on behalf of users of highways, there is an additional component of cost which is not felt to be allocable to the highway user; this element of cost is the basic cost of providing some sort of access to the sites of property owners. It is

argued that:

> ... even in the absence of any sort of long-distance automobile travel, owners of economically utilizable property would still want access to their sites.... A person desiring to live at an isolated country site should pay the cost for gaining access to his land; similarly, an industry desiring to locate a great distance from the city should pay the bill for creating the necessary road transportation facilities for this type of location. 18/

Conceptually, then, it seems necessary, in order to obtain an efficient allocation of resources to the transportation industry, not to allocate to consumers of passenger travel the cost attributable to adjacent property owners. Empirically this is not an easy task.

It remains to discuss: first, the division of cost between non-highway users and highway users; and second, the division of the latter cost share between automobiles and trucks (consumers of passenger travel and transported products, respectively).

The non-highway user is the property owner adjacent to a road or street, and his share of total highway cost is that portion of cost responsibility that arises out of the provision of a basic road which provides property access. 19/ Students of highway economics have usually employed two different methods for determining this non-highway user share (neither one of which is completely satisfactory) which may provide an approximation that is at least acceptable as a first step. 20/

Consider the relative use approach. Here cost responsibility is divided between motor-vehicle users and non-users by the extent to which each road renders a through traffic service as distinct from a local and access service. From studies of motor vehicle use, researchers estimate the number of trips, mileage per trip, and origin and destination of the vehicle user. Then each trip is subdivided into (1)

an access portion (the sum of the distance from trip origin to the first intersection, plus the distance from the last intersection to trip destination), (2) a neighbourhood portion (an area which generates a prescribed number of trip-ends per day), and (3) a through portion (any remainder). Next, each trip is assigned to the type of road on which it occurred. Finally, the sum of all trips by road type are expressed as percentages of each system of roads travelled in access, neighbourhood or through traffic service. The sum of the access and neighbourhood traffic component for all types of roads is the total non-user cost responsibility.

The defect of this method is that it implies that through highway service only provides a service to the vehicle user. The earnings-credit system acknowledges that all roads and streets provide some service to vehicle users, and allows for the fact that while cost per mile of constructed road for the primary road system is much greater than the county road system, cost per vehicle mile travelled is much lower for primary than county roads. First, it is assumed that since the primary road system provides little access to property, it should receive highway user charges capable of financing its construction and maintenance. Next, the highway user charge on a vehicle mile basis, sufficient to cover the total cost of primary highways, is applied to each type of road system from primary through local roads. This calculated total revenue will be less than total highway costs; the shortfall is designated as the non-highway user cost responsibility.

The next step is to calculate the local (usually property) taxes, on a per mile of constructed road basis, sufficient to cover the total cost of local roads, and to apply this charge to all road systems from

local through primary. The calculated total revenue will be less than total highway costs; this shortfall is designated as the highway user's cost responsibility. These two steps are averaged (weighted by miles travelled) to result in one-user/non-user cost responsibility share for all roads and streets.

Usually both methods are employed, and in the most comprehensive studies they have resulted in remarkably similar results. The studies of both William D. Ross for Louisiana, and the Bureau of Roads for all roads and streets in the United States, reveal that when a highway improvement programme is planned for the road and street system, the proportion of costs allocable to the non-highway user is 25%. 21/ We assume that these results are also appropriate for Canada and, consequently, allocate 25% of highway expenditures to non-highway users.

This cost element is allocated by a distribution of the value of owned property because it is incurred on behalf of property owners. While data exist on the distribution by income class of the value of owner-occupied homes, there is a scarcity of data on the value of land owned by income class. As a result, it is assumed that the value of owned land is approximately proportional to the value of an owned house; in this way the series on the distribution of the latter becomes identical with the total value of property owned. 22/

It remains to distribute the user cost share of a highway improvement programme between consumers of passenger travel and consumers of transported products (cars and trucks). The most difficult problem, both conceptually and empirically, is the treatment of joint

costs of providing an identical service used by two different classes of users. The Incremental Cost Approach was developed to tackle this problem, while, at the same time, allowing for the consideration that highway construction costs and maintenance outlays vary as vehicles of heavier weights (axle-weights are the crucial variable) are being employed to transport goods and services.

Initially two assumptions underlie the analysis: (1) if all long distance travel were to cease, access roads to situs would be required by property owners; and (2) while the elimination of car travel would reduce the total demand for highways to almost zero, the elimination of truck travel would not perceptibly alter the total demand for road service. 23/ The cost of a highway improvement programme can then be divided into "basic costs" and "specific costs". The first component of the "basic cost" is that cost necessary to provide an access road to property owners. The second component of the "basic cost" is that cost necessary to provide and maintain a surface that is capable of withstanding light vehicular traffic. This increment varies according to the number of vehicles that are expected to pass over it per time period; and the first incremental cost is allocated entirely to passenger cars.

The costs entailed in providing an additional surface capable of sustaining various classes of trucks and heavier vehicles are called "specific costs". The second increment of cost in most studies is the cost of special features of design and construction necessary for the 6,000 to 10,000 pound axle-weight vehicles; this second increment of cost is then allocated solely to this group of vehicles. Other increments are similarly treated.

In the first instance then, each cost increment is allocated to the group of vehicles that necessitates the cost, and the common cost problem is thereby eliminated. But this approach is not entirely satisfactory because vehicles in a higher axle-weight group need the design improvements which give rise to the incremental costs which are initially occasioned for lighter axle-weight groups. Logically, vehicles in the second incremental cost group should bear some of the first increment of cost on some basis which reflects the relative use of highways by each vehicle group.

In fact, this approach is employed by all incremental cost studies, and the method of distributing the common cost element is by vehicle miles travelled on each road system. The use of vehicle miles travelled, by which are allocated portions of initial increments of cost between light and heavier vehicles, is an arbitrary one, and depends on the belief that vehicle miles are an accurate measure of relative highway use. It is necessary to point out, however, that the vehicle mile neglects any consideration of congestion because vehicles of different sizes and weights are all given equal consideration. 24/

In short, the incremental method of highway cost allocation is a practical compromise between theory and some reasonable allocation of a joint cost. While there are limitations to its actual use, it is a reasonable first step toward obtaining a general idea as to the relative cost shares allocable to the various highway users. Students of highway economics and policy makers faced with financing future road systems are relying on the results of this approach. On the basis of empirical results, the highway user cost share is divided in the United States between automobiles and trucks by allocating 56% to the former and 44% to the latter. 25/

These shares are the result of averaging the results of seven state studies, all of which showed some variation about the mean. It was decided in this Study to use these shares in allocating the highway users' share of highway expenditures between consumers of passenger travel (cars) and consumers of transported products (trucks and heavier vehicles).

The 56% of the user share allocated to consumers of passenger travel is distributed by the series, expenditures on automobile operation. This series includes outlays on gasoline, oil, insurance and other operational expenses, all of which are an approximate measure of road usage. The remaining user share, allocated to trucks, is distributed by the series, consumption of transported products, the derivation of which is explained in the appendix.

In line with the treatment throughout this study of the exportation of various taxes, that portion of the user benefit which accrues to consumers of transported products, has been separated into an export and domestic share. 26/ The domestic share is received by Canadian consumers and is included as a benefit of Canadian families. The exported share accrues to non-Canadian families, and it is excluded from this analysis.

Besides expenditures on highways, public expenditures on other modes of transportation, e.g., air travel, water services and rail travel, are also made, mainly at the federal level. 27/ The nature of these expenditures is rather varied, and this makes any formal analysis very difficult and complex. On the one hand, there are expenditures, the costs of which are incurred on behalf of users of particular travel facilities - construction and maintenance of airways and facilities for air terminals, marine services

and the provision of adequate harbour and docking facilities, and rail subsidies to transport persons over uneconomic lines. On the other hand, there are expenditures, the costs of which are mainly incurred (via aids to business) on behalf of consumers of goods capable of being transported—rail subsidies to transport goods and the business component of the marine services. Then, too, the shipbuilding subsidies which are meant to enable Canadian ship operators to purchase ships built in Canada at competitive prices, are really in the nature of a subsidy to the owners of factor services.

There is no clear-cut way in which to separate these various functions. As a simplifying step we chose to assume that these transportation expenditures are incurred equally on behalf of consumers of other transportation services and consumers of transported products. The former are distributed by a series of consumer expenditures on air, water and rail (and urban transit fares), while the latter are distributed by the series developed for highways.

Expenditures on Education

It is assumed that public expenditures on education are incurred on behalf of the students being educated, and these costs are allocated to students at the various levels of education by their distribution among income classes.

In the case of public expenditures on education the allocation of costs incurred by the government to beneficiary groups is quite straightforward. The government incurs these costs on behalf of one beneficiary group, the students. The point of departure in this study has been

family money income; as a result, it will be necessary to treat the relevant costs which are incurred on behalf of the students as being transferable to the parents. In this way public expenditures on education are imputed to the family group to which the student belongs 28/ The situation then reduces itself to: (1) determining the appropriate costs of education, and (2) obtaining a distribution of students by income class in order to distribute these costs.

Table 3.1 indicates that public expenditures on education account for fifteen per cent of total government expenditures. Almost all of this expenditure is accounted for by provincial and municipal expenditures. Table 3.2 provides the breakdown of such expenditures by level of education and by level of government.

TABLE 3.2

EXPENDITURES ON EDUCATION

1961

Millions

Level of Education	Level of Government		
	Federal	Provincial and Municipal	All Levels
Elementary and Secondary	$ 38	$ 1,527	$ 1,565
Higher Education	55	200	255
All Levels	93	1,727	1,820

Source: Table A-11(a).

Federal expenditures on education at the elementary school level include expenditures on the education of Indians, Eskimos, residents of the northwest territories and the Arctic. In addition, the federal

government shares with the provinces expenditures on schools for unemployed persons, disabled persons and students taking technical courses. Federal expenditures on higher education consist of per capita grants to the universities and research funds, such as, The Commonwealth Scholarship Plan, special research grants, and other fellowships. These education expenditures are all treated in the same manner as the provincial and municipal expenditures on education.

The provincial and municipal expenditures on education are mainly for elementary and secondary schools; in addition, post-secondary vocational and teacher training expenditures are included in this category. 29/ These expenditures are assumed to be incurred on behalf of elementary and secondary school children and they are allocated accordingly. Expenditures on higher education are provincial expenditures for universities and colleges, and it is assumed that these costs are incurred on behalf of such students (or the family group to which they belong). Such costs are allocated by a distribution of university students.

The next step is to determine the distribution of students, by the income level of their parents, on whose behalf the public expenditures are made. Ideally, one would want the distribution of students at each of the three main levels of education - elementary, secondary and university education. The relevant public expenditure could then be allocated to each level. However the lack of (1) a breakdown between public expenditures on elementary and secondary education, and (2) a distribution of students for each level, renders this approach empirically impossible. 30/ Consequently, for the purposes of this section, elementary and secondary students treated together, and university students are examined.

The series for elementary and secondary students combined is derived from data provided by D.B.S. The series actually includes all children sixteen years and under; consequently, it is less than ideal in that it includes pre-school children and excludes seventeen and eighteen year-olds. However, it is not believed that these deficiencies render the series significantly different from the actual distribution of elementary and secondary students combined. In addition, the series is a weighted average of children whose parents derive their income from farm and non-farm sources. The distribution of farm children came from the 1958 Farm Survey, which was carried out for one year only, and, as we noted before, had certain defects which rendered it somewhat less than perfect for purposes of analysis. The possible distortion, however, resulting from the omission of farm children would be a more serious error than that resulting from the inclusion of the somewhat imperfect series. For this reason, it was thought desirable to employ the series given in Table A-1. 31/

It is necessary to point out an implicit assumption concerning the distribution of combined elementary and secondary students. Our method of imputing the government expenditure on elementary and secondary education to a distribution of elementary and secondary students assumes that the average per pupil cost is constant over the entire parental income range. On the national level, this appears to be a reasonable assumption. However, to the extent that municipalities with higher than average per capita income, spend a higher than average per pupil amount on education, then there will be a positive correlation between per pupil cost and parental income. While this may in fact be true, it is extremely difficult to allow for different levels of cost in the investigation. As a result, it is assumed that the per pupil

average cost is independent of family income. 32/

The percentage distribution of university students is derived from a survey of student incomes and expenditures carried out in 1957. 33/ The 1957 series has been adjusted to a 1961 basis by means of the extrapolation procedure described in the appendix. 34/ In the absence of any 1961 data, this procedure was necessary. 35/ It might, however, introduce a bias. The extrapolating procedure does not allow for the possibility of a changing importance of factors, other than parental income, which affect the decision to attend a college or university. To the extent that these factors do change over time, then they will have an (unknown) effect on the distribution of university students by parental income, an effect which is not allowed for in our 1961 distributive series.

In addition, the survey gives the distribution of only unmarried students. To the extent that the parental income of married students is significantly different from the parental income of unmarried students, then an error is introduced into the series. 36/ We explicitly assume that the parental income of married students is not significantly different from the parental income of unmarried students. 37/

One other reservation might be noted here. The survey of University Student Expenditure and Income in Canada, 1956-57, referred to in reference 33, did not go into great detail in compiling the income estimates of the students' parents; consequently, there is a higher probability of error in reporting parental income here than, say, in the Survey of Consumer Finances or Expenditures, from which the other series are derived. This could lead to either an understatement or overstatement of true parental income. We have, nevertheless, treated

this series as being on a comparable basis.

These reservations must be kept in mind when examining the results of using the aforesaid series in the allocation of public expenditures on higher education.

Expenditures on Public Health and Sanitation

Government expenditures on public health and sanitation are set forth in Table 3.3. For the purpose of this analysis, such expenditures on public health may be conveniently grouped into three classifications:

(1) public health. These expenditures include general medical research, preventive public health programmes, medical and dental care;

(2) hospital care. These expenditures encompass the hospital insurance programme which covers close to 95% of all Canadians; and

(3) sanitation. These expenditures include all local expenditures on sanitation, waste removal and sewage disposal.

Each one of these expenditures is examined separately below.

The public health service at all levels of government carries out many programmes which aim at preventing the spread of communicable diseases, and conducts research toward this goal. The power to quarantine is available at the federal level, and, in addition, the federal government provides grants specifically designed to equalize the level of health services for all provinces. The provinces engage in research and programmes concerning mental health, industrial

TABLE 3.3

EXPENDITURES ON PUBLIC HEALTH AND SANITATION, 1961

Expenditure	Federal Millions	%	Provincial and Local Millions	%	Total Millions
Public Health	$ 49	13.3	$ 124	14.6	$ 173
Hospital Care	317	86.7	543	64.3	860
Sanitation	0	0	179	21.1	179
Total	$ 366	100%	$ 846	100%	$1,212

Source: Table A-11(a)

hygiene, communicable diseases, tuberculosis, cancer, etc. In addition, some free services, for handicapped children whose parents are not able to sustain the cost, are provided.

In other words, to some extent, public health services are provided for people who are financially incapable of providing for them through private medical care; in this case the cost of providing such services would be more heavily concentrated among the lower income earners. But this is the rare case. Most public health services (and research) are in the nature of pure social goods which are available for consumption in equal amounts by all. To the extent that all families experience a reduction in the probability of contracting certain diseases, or, having contracted the disease, experience an increase in the probability of recovering, all families can be said to have the opportunity of consuming equal quantities of "public health". 38/

In this sense, public health service expenditures are in the nature of a "public good", and they are made on behalf of all families and individuals according to their distribution among income classes. It is necessary, therefore, to allocate this expenditure by a family distribution, a distribution which reflects most closely the distribution of the good. We did not include it among the "general" or "non-allocable expenditures" discussed below, as this procedure would have subjected it to several alternative assumptions, assumptions which are necessary when there is no clear-cut reason for preferring only one pattern. Here, there is a preferable choice — to allocate the expenditures equally among all families and unattached individuals.

The major government expenditure on public health is the Hospital Insurance Plan which operates through shared programmes on both the federal and provincial levels. The various contributions of the federal government to the provincial governments are such that the high cost provinces receive a lower percentage of their total expenditures than do low cost provinces. 39/ As is to be expected, there is a variability among the provincial plans but all provide at least:

(1) standard ward care;

(2) out-patient services on an emergency basis (except Alberta); and

(3) out-of-province hospitalization for residents away from home. 40/

An examination of the costs incurred in providing hospital care services faces two difficulties at the outset. In the first place, there are no available data on hospital patients by income class that could be integrated into the analysis. Secondly, there is an unknown amount of hospital care that is provided for families whose financial situation puts them into

an indigent category, i.e., they receive basic care and extra services well below the cost of providing them. This problem is largely unsolvable; it is not known how many families receive medical care below cost, and it is not known below what income level these families must fall before they receive such care (a level which may differ depending upon the municipality involved). It is assumed, in the face of such ignorance, that such indigent families are insufficiently numerous to alter the final results; in effect, then, the problem is assumed away.

The first difficulty remains. It seems clear that hospital care expenditures are made on behalf of individuals who have recourse to the facilities provided under the plan; in other words, hospital care costs are incurred on behalf of hospital patients (and out-patients, on an emergency basis). However, there does not exist a distribution of hospital patients by income class, which would be capable—after some manipulation to allow for the length of hospital stay—of describing this group of beneficiaries. Consequently, recourse is had to the following assumption, which appears reasonable, and is capable of verification or refutation at a later date. 41/

It is assumed that hospital care covered by the present plan is needed by individuals who are randomly distributed by income class. One doubt might be noted which would tend to qualify the results of employing this assumption. To the extent that a communicable disease is being treated, there is a high probability that more than one member of the same family would be sick at the same time. This would tend to increase the proportion of patients in any one income bracket at any one time; to the extent, however, that there is no reason to expect such bunching to be other than randomly distributed, the qualification is a minor one. 42/

Public expenditures for sanitation and waste disposal can be further divided into those primarily for the benefit of the residential community and those primarily for the business (industrial and commercial) sector of the economy. In a perfectly competitive economy the latter benefits operate much in the same manner as a negative general sales tax, and they are shifted forward to consumers. It is assumed that that portion of sanitation expenditures allocable to business concerns is incurred on behalf of consumers, and it is distributed by the series, total consumption expenditures.

Unfortunately, there is no way of knowing just what proportion of total sanitation expenditures are properly allocable to the business sector. In view of the uncertainty surrounding this question, it was decided to utilize the ratio of the value of business property to the value of total property, set forth in the property tax section, 43/ in order to estimate the share of sanitation expenditures allocable to the business sector. Consequently, 33% of sanitation expenditures are allocated to the business sector, and distributed by total consumption. 44/

The remaining 67 per cent of sanitation expenditures is allocable to the residential community. This service is provided for the benefit of occupants of housing units, whether they be home owners or renters. As a result, the costs incurred by the government are incurred on behalf of these home owners and renters, and the costs are allocated to these two groups according to their distribution among income classes.

Expenditures on Agriculture

The public sector is involved with the agricultural sector of the economy in several separate and distinct ways. First, the government makes direct payments to the farm sector in connection with its price support, deficiency payment, and other related programmes. Secondly, the government provides production and marketing services for the farm community. Finally, there are research and administrative costs.

TABLE 3.4

EXPENDITURES ON AGRICULTURE, 1961

Item	Federal		Provincial	
	Per Cent	Millions	Per Cent	Millions
Research and Administrative and Other Farm Service Expenditures	20	$ 59	100	$ 77
Production and Marketing Services	25	74		
Price support and Related Payments	55	162		
Total	100	$ 295	100	$ 77

Source: Tables A-11(a) and A-11(d). The percentage distribution from the Public Accounts expenditures is applied to the total farm expenditure figure in Table A-11(a).

The research and administrative expenditures involved in providing goods and services for the farm community are most clearly in the nature of a good provided directly for the farmer, the cost of which is not expected to vary among farmers of different income classes. The federal government carries out agricultural research via experimental and special project farms throughout the community. In addition, there are expenditures

on rehabilitation and conservation projects which are carried out by both the federal and provincial levels of government. On the provincial level, the public sector provides many diverse agricultural services, ranging from the encouragement of specific crops, to the provision of agricultural colleges administered either by the Department of Agriculture or of Education. 45/

These expenditures are here referred to as farm service expenditures. The cost of providing such expenditures is incurred on behalf of the farm community, and it is unlikely that such costs vary as farm income varies. It is assumed, therefore, that these farm service expenditures can be allocated by a distribution of farm operators by income class.

The production and marketing services that are provided for the farm community are quite varied, and it is not the intent of this paper to provide a detailed description of each component service. Included under this broad classification are: (1) the freight assistance payments on western feed grains which, in effect, subsidize the shipment of western grains to eastern Canada; (2) quality premiums on hog and lamb carcasses in order to encourage hog and lamb production; (3) payments to encourage the development of better soils through the use of lime; (4) the deficit of the Agricultural Products Board; (5) advance payments for prairie grain producers; (6) crop insurance; and (7) guaranteed loans for farm credit. In general these programmes aim at encouraging specific types of farm activity or at assisting the marketing of crops through payments to the farm sector. Given perfect competition in, and mobility of resources into and out of, the farm sector, these subsidies would lead to a reduction in the cost of producing and distributing agricultural

products, a cost reduction which would be passed on to consumers of such products. This reasoning does not allow for the fact that (1) the prices of some farm products are fixed by the farm price-support programme, and (2) the purpose of some subsidies is to render a given supply of farm products competitive with an alternative but cheaper source. To the extent that these qualifications are important, the private cost reduction is not translated into a price reduction benefiting consumer; rather it serves to augment farm incomes at the given price. In the light of these considerations, it is assumed that such subsidies accrue to the farm community and, since they are based on the value of farm crops, they are proportional to farm income. Consequently, such expenditures are allocated to farmers by a distribution of farm income.

The final, and most costly, groups of public expenditures on behalf of the farm community are those which attempt to stabilize farm incomes. Included among these programmes are: (1) payments of the Agricultural Stabilization Board in connection with the expenses of the price support programme; (2) deficiency payments to western grain producers arising out of the Prairie Farm Emergency Fund; (3) payments to western grain producers to compensate farmers for high costs of production and a low world wheat price; and (4) payments of storage costs for temporary wheat reserves. In general, it may be argued that these payments arise out of a determined effort to maintain support prices higher than would ensue were the market left to determine the price of farm products; or, given a market-determined price, deficiency payments are made to farmers to compensate for the differential between price and some "desirable" support price. 46/

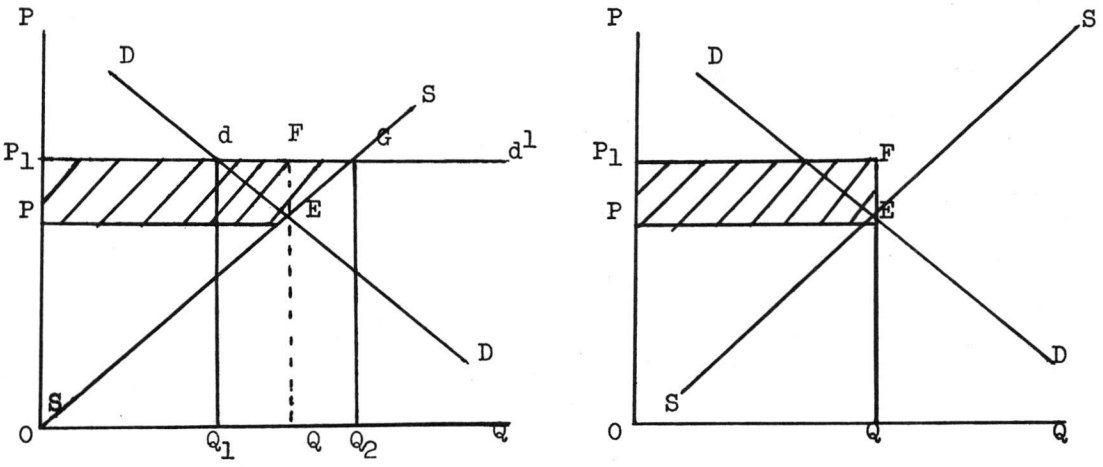
It is clear that price-support levels, maintained by a government policy of purchase-and-storage or by a deficiency payment policy, confer upon the farmer transfer payments which augment farm income. Moreover, these payments accrue in proportion to farm sales; consequently, a rich farmer benefits absolutely more than a poor farmer. In other words, the costs of a public policy of price support increase as income increases. To see why this is so, let us consider a simplified agricultural economy where one crop is assumed to be representative of the mixed output of the farm community. Assume that a price support programme, which maintains the effective price of the farm output higher than the equilibrium price is instituted.

The following diagrams set forth the situation. In Diagram 3(a), the price support policy is maintained by a policy of the government actually purchasing sufficient quantities to force the market price up to the support price at P_1. Prior to the price-support policy, the conditions of demand and supply give rise to a market price of P determined at quantity Q. After the crop purchase and storage plan has been inaugurated, the demand curve becomes Ddd^1 at the fixed support price of OP_1. Output increases to Q_2 and the government ends up with a surplus of Q_1 Q_2.

The gain to farm factors is $PEGP_1$. In the first place, the farm sector receives a higher per unit price PP_1 for each unit of the farm crop produced under conditions of perfect competition (at OQ_1); this results in a gain in income of $PEFP_1$. The higher price calls forth additional output of QQ_2 from the farm sector. This additional output which requires farm resources of QQ_2GE is purchased by the government with tax dollars amounting to QQ_2GF. The resulting net gain in income attributable to the extra output is EGF. In total then, the gain to farm factors is

$PEGP_1$; and the price-support subsidy is Q_1Q_2Gd.

In diagram 3(b) the price support is maintained by allowing the price to be determined by the market after which the government makes a deficiency payment which is the differential between the market price and the desired support price. The gain to farm factors is $PEFP_1$. The equilibrium market price is OP; the desired support price is OP_1, and the government pays a deficiency payment of PP_1 per unit of output. In this case, the subsidy payment, as well as the net income gain to the farm sector, is designated by $PEFP_1$. 47/



3(a) 3(b)

Regardless, then, of the method by which the price support is effected, the subsidy payments lead to a net gain in farm income. On the other hand, the magnitude of gain is dependent on the method used, and only in the case of deficiency payments is the net gain equal to the subsidy payment. The crop purchase and storage plan is such that part of the net gain is due to the higher price being charged consumers, and only under certain conditions, will the net gain equal the subsidy payment. A more complete analysis

would have to allow, in a meaningful way, for the differential impact of the two programmes. But it is here assumed that such price-support programmes benefit farmers, to the amount of the subsidy payment and proportional to farm income. 48/

Expenditures on Social Welfare and Veterans

The bulk of public expenditures on social welfare and veterans is in the nature of transfer payments to individuals, with only a minor portion attributable to the administrative costs of providing such services. 49/ In this section the main emphasis will be on these transfer payments and their distribution among income classes.

Table 3.5 provides a **broad** summary of the cost of the various social welfare programmes. It is, perhaps, necessary to note that the particular component breakdown provided by Table 3.5, and the framework within which expenditures on social welfare and veterans are examined, is suggested by the availability of appropriate series with which to distribute the relevant transfer payments. For example, the inclusion of social welfare expenditures on unemployment insurance in a catch-all "other" category is not meant to suggest that they are a minor welfare programme—quite the contrary, this item accounts for the largest expenditure within the social welfare and veterans' total, amounting to over one-quarter of the total; rather, it is a result of there being only one distributive series with which to allocate all transfer payments subsumed under "other".

Social welfare transfer payments have several distinctive effects on any economy, each of which may have a different impact on the distribution of income. In the first place, social welfare payments are a means of

TABLE 3.5

PUBLIC EXPENDITURES ON SOCIAL WELFARE AND VETERANS, 1961 */

Type of Expenditure		Amount Millions	Amount Per Cent
1. Family Allowances		$ 524	19.2
2. Old Age Security Transfers		721	26.4
3. Government Pensions		121	4.4
4. Other Transfers		1,364	
a) Veterans	337		12.3
b) Unemployment Insurance	754		27.6
c) Miscellaneous	273		10.0
5. Total Expenditures		2,730	100.0

Source: Table A-11(a).

*/ All levels of government: federal, provincial and municipal.

Note: Details may not add to totals due to rounding.

maintaining the level of income in the face of an interruption, either temporary or permanent, in the normal flow of this income. 50/ These transfer payments attempt to mitigate the effects of economic insecurity—temporary unemployment, retirement from the labour force due to age, total disability, loss of wage earner, or blindness—on the flow of income.

Then, too, social welfare programmes redistribute income at any one time and/or over a longer period of time. Social security payments transfer command over resources from those who work to those who do not work

(the unemployed, the aged and the disabled), from those who experience no economic insecurity to those who do, and from those with a below average number of children to those with an above average number of children. This is redistribution at any one time.

There is also lifetime redistribution involved in some programmes. The old age security fund payment (OAS) is such that it redistributes an individual's command over resources from his period of gainful employment to his period of retirement in old age. There is also an element of lifetime redistribution in connection with the unemployment insurance fund payments (UIF), in that benefit payments of "covered" employees are weighted to favour those who have had a low average past income.

While all such economic effects are of some importance, this section examines the distributive effect among families during only the year 1961. In addition, it is assumed that direct transfer payments, like the personal income tax, cannot be shifted from those families who receive such social welfare transfers.

FAMILY ALLOWANCES

Family allowance payments are made on behalf of every child under the age of sixteen. 51/ A monthly payment of $6 per child or $8 per child is made, depending on whether the child is under ten years, or between the ages of ten and fifteen respectively. These payments accrue directly to the family of whom the child is a member and augment its gross family income; they are allocated by the series, family allowances. In addition, the goods and service expenditures portion is allocated by the same series. 52/

OLD AGE BENEFITS

Old age benefits take two forms: there are old age security fund payments (OAS), which are, by far, the most important source of public retirement income; and there are old age assistance payments. Under the latter programme the federal government provides half the funds for assistance payments by the provinces to the elderly who are not eligible for OAS benefits.

Pensions under the OAS system accrue to all persons, seventy years of age and over, as a matter of right; during 1961 the monthly pension payment amounted to $55 per person. The benefits are paid from the old age security taxes which in 1961 were comprised of: a three per cent sales tax, a three per cent tax on the taxable income of corporations, and a three per cent tax on the taxable income of individuals up to a maximum of $90.

It is a fairly well-documented fact that the aged command a limited amount of resources. 53/ Their total income position is such as to place a large majority of them in the lower income brackets. In fact, of all families in which the age of the head is over sixty-five years, 36 per cent are located in the "under $2,000" income bracket. 54/ If unattached individuals were included in this distribution the share would be even larger.

The 1961 Survey of Consumer Finances provides a distribution of old age pension payments which includes OAS fund pension payments and old age assistance payments by income class. This series is used to allocate the OAS fund transfer and old age assistance transfer. As the federal pension is a flat rate, the series can also be used to allocate the administrative

costs, which are incurred equally on behalf of all pension recipients.

GOVERNMENT PENSIONS

A minor item within the social welfare transfers and expenditures is the pension payment to retired government employees. As the taxes (or, which is the same thing, contributions) which make up the revenue source, out of which such pensions are paid, are included on the tax side of the analysis, the pension payments must be properly included here. In addition, the government makes a partial contribution; in effect, a distribution out of general revenues occurs.

Government pensions are allocated by a distribution of "government pensions and annuities".

OTHER TRANSFERS

Several transfers are combined under "other" transfers because there exists one distributive series only which comprises the following transfer payments: veterans' pensions and allowances, unemployment insurance fund benefit payments, direct relief payments, aid to the blind and disabled, workmen's compensation, mothers' allowances and various miscellaneous transfers. As a result, while it is possible to discuss the various expenditure programmes separately, it is necessary to examine empirically the combined total of the transfer payments. In effect, this makes it impossible to separate the distributive effects of war veterans' allowances from unemployment insurance payments. Since we are, however, mainly interested in the total effect of budget expenditures on the distribution of income, this is not a serious limitation.

Expenditures on Veterans

There are two distinct types of public expenditures on behalf of veterans or their dependants: first, there are expenditures on the health, welfare and education of the veteran, which, when coupled with administrative costs, amounted to $100 million in 1961; then, too, there are transfer payments that take the form of war pensions and veterans' allowances, amounting to $237 million in 1961. The latter can be allocated with available data. The allocation of the former was based on an estimated distribution, the derivation of which is set forth in this section.

Consider transfer payments to veterans. War pensions are paid to disabled veterans or their dependants. 55/ Of the total pension payment approximately one third goes to veterans of World War I, the remainder to veterans of World War II. These pensions are direct transfer payments accruing to the veterans (or their surviving dependants) who are entitled to them. In addition to war pensions, veterans' allowances are given to aged or disabled veterans or their widows who cannot provide their own maintenance. 56/

Both war pensions and veterans' allowances are allocated by a distribution of veterans' transfer payments. This series is included among the "other transfers" in our data source.

Public expenditures for the health, welfare and education of veterans comprise such activities as: (1) various kinds of free medical and hospital care for former members of the armed forces, (2) post-discharge benefits, such as, vocational, technical and university training,

(3) various classes of loans to eligible veterans for the construction of homes, and their establishment as full-time farmers, and (4) life insurance for veterans who became uninsurable during their services. These expenditures are in the nature of the provision of goods and services, whose cost is incurred on behalf of veterans of both world wars. Assuming that the average cost of providing a unit of such service is independent of the level of income, the next step is to allocate such expenditures to all veterans.

Unfortunately there is no distribution of veterans by income class, comparable to the distribution of war pensions and veterans' allowances included within the "other" transfer series. The series for veterans was estimated in the following manner, with two assumptions underlying the procedure: (1) veterans within any given range of ages are randomly distributed by income class throughout the total civilian population (of families) for the same age range; and (2) veterans of World War II were, for the most part, between the ages of twenty and forty-four at the time of the war. 57/

It is recognized that, to the extent that war-connected disabilities reduce the potential stream of labour income (even with the disability war pensions taken into account), veterans will not be randomly distributed throughout the income distribution; rather, they will be more heavily weighted toward the lower income bracket. On the other hand, to the extent that veterans take advantage of the vocational and university training provided with public funds, and to the extent that a higher than average level of education is correlated with a higher than average income, 58/ then veterans will not be randomly distributed;

rather they will be more heavily weighted toward the upper-income brackets. There is no reason to believe that these opposing tendencies will cancel out. The assumption of random distribution appears to be a reasonable one, and it can be readily adjusted as more evidence becomes available.

The distributive series is obtained by summing the assumed distribution of World War I veterans - families whose head is sixty-five years of age and over - and the estimated distribution of World War II veterans - families whose head is between forty and sixty-four years of age. Each distribution is weighted by the respective number of veterans of each period. The final result is an estimated distribution of veterans, and while it is clearly less than ideal, it is at least a reasonable approximation. Public expenditures for the health, welfare and education of veterans are allocated by this series.

Unemployment Insurance Benefits and Related Expenditures

There are two main kinds of unemployment insurance benefits. Direct transfer payments in connection with the unemployment insurance fund and unemployment assistance programmes, and expenditures on goods and services through the national employment service which assists in placing unemployed workers. The statutory aim of unemployment compensation is to maintain, to a certain extent, a "covered" employee's income level when he becomes unemployed. The amount of benefit transfer payment is a function of past contributions and marital status, ranging from 36 per cent to 67 per cent for a single male. 59/, 60/.

The unemployment benefit is a direct transfer to those who are unemployed and the main benefit accrues directly to the recipient. There exists a distribution of unemployment insurance transfer benefits within the "other" transfer series, and this is used to distribute these payments.

In addition to the transfer component of unemployment benefits, there are also administrative costs of the insurance programme, and expenditures which arise out of the operation of the National Employment Service. This service exists to place unemployed workers and special workers (such as, professionals or the handicapped). These expenditures are incurred on behalf of all labour, and they are here allocated by a distribution of wages and salaries.

Miscellaneous Transfers

Miscellaneous transfers include such programmes as workmen's compensation, mothers' allowances and child welfare, direct relief, and aid to the blind and disabled. No separate analysis of these transfers is provided here; and they are all allocated by the distribution of "other" transfers.

Interest Payments on the Public Debt

During 1961 interest payments on the public debt, amounting to $837 million and comprising seven per cent of total government expenditures, were made by the various levels of government to individuals, institutions and non-residents. 61/ The purpose of this section is to examine in a very broad and approximate manner the distribution of these interest payments. There are several alternative methods of

approach and the selection of one of these is not meant to deny the validity of those excluded; rather, it reflects only (1) the specific purpose of the entire analysis, and (2) the dearth of data, coupled with the depth of analysis necessary, for a really exhaustive examination of all alternatives. Briefly, however, there appear to be three settings in which interest payments on the public debt could be examined: as part of a transfer system, in the context of compensatory finance, and within the framework of a classical system.

THE CLASSICAL APPROACH: INTERGENERATION EQUITY

In a classical model, where all private income is spent on investment or consumption, where full employment is automatically maintained and where price level stability is assured, debt policy serves exclusively the functions of allocating resources and distributing real incomes. If the satisfaction of certain public wants entails initial capital expenditures, the benefits of which accrue now and in the future, taxpayers may wish to pay for the service as the benefits accrue. Loan finance in this case becomes an instrument of rational public policy. 62/

Loan finance, in other words, is able in some circumstances to distribute the cost of public programmes over the various benefiting generations. The interest payments on the debt represent the opportunity cost of the real income stream flowing from the existence of "public" assets. 63/ Interest, in this case, becomes a factor return, a return which is necessary to divert funds to the provision of lifetime public assets. Interest as a factor return would be treated similarly to the other factor returns, such as, the wages and salaries of government employees; the opportunity cost of providing "public" assets would be

allocated to those groups on whose behalf the expenditures are incurred.

This is clearly a detailed process which would take the analysis too far afield at the present time. In addition, not all interest payments can be looked on as the opportunity cost of public assets. For these reasons, it was not thought desirable to pursue this line of thought any further.

THE COMPENSATORY FINANCE APPROACH: LIQUIDITY CONTROL

In a less than classical model where full employment is not automatically maintained, one result of fiscal compensatory action to maintain all resources fully utilized and to eliminate price level instability, is the emergence of a public debt. To some extent, the efficacy of monetary policies may depend upon the existence and structure of the public debt. This public debt, however, need not persist. The government can always create new money and purchase its outstanding obligations, either directly or through control of bank open-market operations; i.e., the government can monetize the debt. Since the option of monetizing the debt is open to the government (subject, that is, to institutional factors and the rate of potential market absorption) the decision not to monetize the debt can be considered as a reflection of the desire to inhibit consumers and businesses from spending on consumption goods or private investment. This is known as the purchase of illiquidity. 64/

When the debt is viewed in such a setting the interest payments are the price which the government must pay to purchase that degree of illiquidity which is deemed appropriate for the given state of the economy. The cost of purchasing this illiquidity is incurred on behalf of the beneficiaries of liquidity control, who would also be the victims of

debt monetization. Who the victims of debt monetization are, would depend on the particular course of action pursued by the government in monetizing the debt. The government could monetize the debt and: (1) take no further action; (2) increase taxes or decrease government expenditures so as to keep the money supply constant; (3) increase reserve ratios, etc.

While it is not the intention of this section to examine these actions in depth, it might prove helpful to sketch out the reasoning with respect to the first example cited. If the debt were to be liquidated without any ameliorative action, inflationary pressures would result, directly via increased consumption and investment, and indirectly via the spending of business and individuals in response to the lower interest rates resulting from monetization of the debt. Those individuals whose relative economic positions were worsened due to inflation would be the victims of a policy of debt monetization; they would benefit from the existence of the debt. As a result, the interest payments on the public debt—the price of purchasing illiquidity—are, in this case, incurred on behalf of the victims of potential inflation.

Other policies would result in imputing the interest payments in a similar manner, but to entirely different families. It is obviously beyond the scope of this investigation to examine, even theoretically, the implications of all possible alternative policies. In addition, this is relatively virgin territory so far as any meaningful empirical estimates are concerned. This study makes no attempt to deal with or estimate the possible distributional effects of compensatory fiscal or debt policy. 65/

THE TRANSFER APPROACH: REDISTRIBUTION OF INCOME

The intent of this entire investigation is to examine the public sector as a means of redistributing income in the process of providing goods and services to satisfy public wants. Taxes are collected to pay for interest payments on the public debt; consequently, short of the case in which the distribution of tax payments by income class is identical to the distribution of interest payments, there will be a redistribution of income among families. It is, therefore, a necessary and logical step to attribute the distribution of interest payments to those families and individuals who actually receive these payments. 66/ In this way, one can build up a picture of the total redistributive effect of the fiscal system. This section describes how this approach has been applied to interest on the federal debt.

The procedure involves two distinct steps. It is first necessary to estimate the amount of interest paid to each class of holder of the public debt: an owner of the public debt may be an individual, a corporation, or an institutional investor. The next step is to consider the possibility of shifting such payments to individuals other than holders of the debt.

The distribution of the federal public debt by type of owner is shown in Table 3.6 where individuals and the chartered banks hold the largest proportions. 67/ It was impossible, given the available data, to estimate for each owner the total interest payment. In order to arrive at an approximate share of each debt holder's interest receipts out of total interest received by all debt holders, the relative weight of each holder's value of debt held was multiplied by the total interest payment on the public debt. What evidence there is suggests that this

is not a significant distortion of the pattern of relative interest receipts by ownership of the public debt. 68/

The distribution of interest charges is shown in column (3) of Table 3.6. Before we proceed to examine the possibility of shifting such interest payments from debt owners to others, it is necessary to distinguish between that part of the public debt, the interest payments from which actually accrue to individual or institutional investors, and that part of the public debt held by the government itself (or various agencies which receive their income partially from general tax revenues), the interest payments from which serve to reduce the amount of tax revenues necessary to finance the government's expenditures. Among this latter category can be included the public debt held by the Bank of Canada, various trust funds (such as the Unemployment Insurance Commission) of the federal government and provincial and municipal governments. Consider the Bank of Canada. The net income of the Bank is paid to the Department of Finance, and for all intents and purposes becomes an alternate source of tax income; this allows the federal tax burden to be lower than it would have been, either in the absence of a public debt or had the public debt been entirely held by individual or corporate investors.

Somewhat circularly, the Department of Finance collects taxes to make interest payments to the Bank of Canada, part of which is returned to the Department of Finance; this, in turn, becomes available for a tax refund. What this amounts to is that the distribution of interest payments on debt held by the Bank of Canada has already been accounted for in a lower tax burden than would have been necessary in the absence of such payments. Such interest payments have already

TABLE 3.6

DISTRIBUTION OF FEDERAL SECURITIES BY OWNERSHIP, (DEC. 31, 1961)

Class of Ownership	Federal Debt 2/ (1) Millions	(2) %	Interest Payments 3/ (3) Millions
1. Bank of Canada	$ 2,876	15.4	$ 101
2. Chartered Banks	3,792	20.3	133
3. Government of Canada Accounts	644	3.5	23
4. Provincial & Municipal Governments	715	3.8	25
5. Life and Other Insurance Companies	1,152	6.2	40
6. Quebec Savings Banks, Trust & Loan Companies, other Financial Institutions 1/ and Industrial Pension Funds. 1/	1,087	5.8	38
7. Non-Financial Corporations 1/	600	3.2	21
8. All Other Residents:			
Market Securities 1/	2,863	15.4	100
Non-Market Securities Canada Savings Bonds	4,097	22.0	144
9. Non-Resident Owners	809	4.3	28
10. Total Debt	$18,635	100.0%	$653

1/ Estimated using 1960 percentage distribution

	1960 %	1961 (Est.) Millions
Other Financial Institutions	7.75	$ 321
Non-Financial Corporations	14.49	600
Industrial Pension Funds	8.59	355
Market Securities	69.18	2,863
	100.00%	$ 4,139

2/ Source: Bank of Canada Statistical Summary Supplement, 1962; p. 60 Table VII.

3/ Total interest payments are from Table A-11 (a).

Note: Details may not add to totals due to rounding.

been allowed for on the tax side of the analysis, and it would clearly be wrong to include them here, on the expenditure side. As a result, it is necessary to exclude such interest payments from the total estimation.

One final adjustment remains. Interest payments paid to non-residents do not accrue to Canadian families, and they must be excluded from the analysis. 69/ The end result of these adjustments is to reduce total federal interest payments of $653 million to what we will call "net allocable interest payments" of $444 million.

Are these net allocable interest payments shiftable? It is not possible to answer this question convincingly based on the available evidence. To the extent that some elements of monopoly control exist, augmented earnings through additional interest payments on public debt held may, in fact, accrue to factor owners in the form of higher dividend payments or retained earnings. On the other hand, to the extent that there is any competition at all in the financial markets, such earnings may induce banks to offer their services at a cheaper rate, thus passing part of the interest income on to their customers. We have assumed that no such shifting is possible and allocated interest payments by type of debt holder to that holder. The appendix examines the effect of employing the alternate assumption of complete shifting and, while there is some change in effective rates, there is no significant effect on the overall pattern of interest payments by income class.

To summarize, 70/ interest payments on the federal public debt held by (1) chartered banks, (2) insurance companies other than mutuals, and

(3) non-financial corporations are allocated to their respective owners and distributed by dividends received. Those interest payments on the debt held by mutual insurance companies are allocated to their owners—by a distribution of the value of insurance premiums. Those payments on the debt held by (1) mutual savings banks, (2) the Quebec Savings Bank and (3) savings and loan associations are allocated to their respective owners by the value of savings deposits. Interest payments on the public debt held by individuals, whether it be marketable securities or Canada Savings Bonds, are allocated by distributions of liquid assets and the value of Canada Savings Bonds, respectively. 71/

It may prove interesting to examine the degree of redistribution of income which comes about because of the existence of the public debt—the necessity of collecting taxes to pay for the interest on the debt. Table 3.7 sets forth the redistribution which is effected solely by the tax payments necessary to pay for the interest on the federal public debt. When the average tax payments made by families are subtracted from the interest payments received by families, the amount of redistributed income is shown in column (3). The lower income earners (up to $3,000) and the upper income earners (beyond $10,000) are net gainers, while the middle income earners are net losers. This is explained by the interaction of both tax payments and interest payments which results in interest payments on the federal debt exceeding tax payments to the government over the lower and upper income bracket. On the interest payments side, this is explained by the weight of interest payments on the debt (Canada Savings Bonds and marketable securities) held by individuals; this type of debt is heavily weighted toward the lower income brackets. Over the upper income brackets it is explained by interest

payments on the debt held by banks and corporations; this type of debt is heavily weighted toward these upper income brackets.

It is the distribution of interest payments on the federal debt, column (2), that will be included among the distribution of all federal governmental expenditures, that is to be examined below.

TABLE 3.7

REDISTRIBUTION OF INCOME VIA TAXES AND INTEREST PAYMENTS ON THE FEDERAL DEBT */

Family Money Income Bracket	(1) Tax Payments	(2) Interest Payments	(3) Redistribution Amount (2)-(1)	(4) Redistribution As a Percent of income **/
	Millions		Millions	%
Under $2,000	$ 19.1	$ 41.2	$ 22.1	2.6%
$2,000 - 2,999	22.2	35.8	13.6	0.8
3,000 - 3,999	39.1	34.5	- 4.6	-0.2
4,000 - 4,999	54.6	37.1	-17.5	-0.4
5,000 - 6,999	114.1	68.2	-45.9	-0.6
7,000 - 9,999	93.7	63.7	-30.0	-0.5
10,000 and over	101.3	163.6	62.3	1.2
Total	444	444	0	0

*/ For the assumption that interest payments are not shifted.

**/ Using the "Broad Income" Concept.

Source: column (1): total is distributed by percentage distribution of federal tax payments, Table A-5, line 8.

column (2): Table A-11(f), line 8.

column (3): Column (2) minus column (1).

column (4): Column (3) is expressed as a percent of the "broad income" base, Table A-4, line 20.

Note: Details may not add to totals due to rounding.

"General" Expenditures

It was mentioned previously that several public expenditures exist that are indivisible or unallocable because there is no evident basis upon which to allocate them to subgroups within the economy. Such expenditures, for example, by the Departments of National Defence and External Affairs, are in the nature of goods and services which satisfy a pure social want; that is, their technical nature - a jointly consumed good to which the exclusion principle cannot be applied - is such as to dictate that equal amounts must be consumed, or at least are available, for consumption by all. This class of public goods was designated as "general" or "non-allocable". Also, as noted above in this study, the "general" class of expenditures includes some public expenditures about which there is not sufficient knowledge to carry out a detailed analysis.

Nevertheless, these public expenditures are provided for through the duly elected representatives of the families of the economy; consequently, it must be assumed that they provide a positive benefit to some families and that they reflect the wishes of at least a majority of the populace. Lacking a set of values which could be placed on them, one must have recourse to several alternative assumptions. The rationale subsumed in the treatment of the "general" expenditures supposes that the benefits derived from them may accrue either to families or economic activity. Within the latter category, one could examine benefits via income-earning activities or income-using activities. With respect to income-earning activities, benefits may accrue in proportion to all income sources or in proportion to selected income sources only. With respect to income-using activities, benefits may accrue in proportion to disposable (after-tax) income.

Let us briefly consider the various alternatives. In the first instance, one could allocate the "general" expenditures equally among all families. In some sense, social wants are being satisfied by goods and services which are potentially available for equal consumption by all families. Since the cost of providing this given quantity of social goods is constant for all families, a distribution proportional to families accurately reflects the "costs incurred on behalf of" the general public. Assumption A allocates the "general" expenditures by a distribution of all families — a per family allocation.

One could also examine the income-earning aspects of economic activity. The value attached to that unit of "public goods" which is available to all families in the same quantity may well be in proportion to the family's income flow. For example, as the family's income increases, the family may well feel that it receives a greater (absolute) benefit from national defence. Assumption B allocates the general expenditure proportional to total income. 72/

It also may well be the case that the benefits from "general" or "non-allocable" expenditures accrue in proportion to specific sources of income. For example, to allocate these expenditures by a distribution of capital income would be in line with the nineteenth century "protection" version of the benefit doctrine. Assumption C allocates the "general" expenditures proportional to capital, or investment income. It is also necessary to point out that when the benefits from "general" expenditures accrue to the owners of capital, that portion of the benefits that accrues to non-resident owners must be eliminated from the estimates and not allocated to Canadian families. 73/

Next, consider the income-using aspect of economic activity. If the benefits from "general" expenditures accrue more in line with the uses to which income is put, than with its distribution from sources, then disposable income would be a logical measure of such income use. Furthermore, disposable income encompasses both the consumption and saving aspects of income use. Assumption D allocates the "general" expenditures by a distribution of disposable income.

These four alternative assumptions are employed in this section in allocating the "general" expenditures. It is not argued that the case for any single one is particularly strong; it is not even argued that all possible alternatives have been considered. However, it is felt that these alternatives provide a broad spectrum from which the reader can select at will. In addition, if and when it becomes possible to refute or verify empirically any or all of the proposed alternatives, then such research can be incorporated into the fabric of this analysis. We have argued above (p. 84) that some such explicitly stated alternative assumptions are absolutely necessary in order to prevent an implicit value judgment from creeping into the analysis. The least that can be said for our method is that it sets forth clearly the necessary assumptions to derive a net pattern of fiscal incidence.

THE EMPIRICAL RESULTS: THE STANDARD PATTERN OF EXPENDITURE INCIDENCE

Before examining the evidence, several points of qualification are necessary. In the first place those qualifications that we mentioned in connection with the estimates of Chapter 2 (See pp. 61-64) apply here as well. Secondly, it is necessary to point out that there may be a higher margin of error surrounding the average effective rates of expenditure

incidence than of tax incidence. This is so because, while almost no families can escape the major tax payments on property and consumption, a considerable number of families do not receive direct benefits from such public expenditures as those made for social welfare and veterans. As a result, it is to be expected that the average effective rate of expenditure incidence could be smaller by an unknown but not inconsiderable amount for a family which did not receive such social security benefits.

Thirdly, consider the treatment of "costs incurred on behalf of" various families. The estimates presented here are estimates of the distribution of the average cost of providing public goods and services; they are not, strictly speaking, estimates of benefits received by all families. In other words, some public services, provided for a specific group of beneficiaries, may confer benefits on families other than the basic group. Except in the case of "general" expenditures, we have not attempted to assess the distribution of these "external benefits".

Finally, to simplify the presentation of the results, the evidence is presented here based on "broad income", and on the assumption that the "general" expenditures are distributed proportional to "broad income" (alternative B). This standard case is selected because it is thought that a higher probability is attached to alternative B in allocating the benefits from "general" expenditures than for the alternative assumptions. The following section examines the evidence when the alternative assumptions are used.

When all public expenditures (defined so as to include expenditures on goods and services and transfer payments) are allocated by the previous

assumptions and then expressed as a percentage of the distribution of "broad income", the resulting pattern of effective expenditure incidence is set forth in Table 3.8 and illustrated in Chart 3.1. The numerical magnitudes represent what percentage the costs incurred on behalf of families in each income class are of all income within each income class. Once again, as the main interest is in relative family positions, the reader's attention is directed toward the general shape of the effective total expenditure incidence.

The absolute magnitudes in Table 3.8 could be misleading if they were interpreted to indicate any particular level of economic welfare. As "broad income" approaches zero the effective expenditure incidence will approach infinity (in the same manner the effective expenditure incidence for the "adjusted broad income" base will approach 100% as an upper limit); and it is obviously misleading to suggest that a family with zero "broad income" (e.g., living entirely on the old age pension) enjoys an infinite level of economic welfare. The correct interpretation to be placed on the rates in Table 3.8 is that, for a family in the lowest income bracket, public expenditures have a greater effect relative to its income, than for a family in the next higher income bracket.

The distribution of government expenditures for all levels of government is clearly favourable to the lower income brackets; the effective rate of expenditure incidence decreases as income increases over the entire income scale. While it is difficult to determine the degree of continued decline of this rate within the upper income

TABLE 3.8

THE INCIDENCE OF ALL PUBLIC EXPENDITURES, 1961 */

Line	Public Expenditures	Family Money Income Class: Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and over	Total
		Percentages **/							
1.	FEDERAL EXPENDITURES, total	99.3	41.6	27.0	22.2	20.1	18.9	17.7	24.2
2.	Highways	.5	.3	.3	.3	.3	.3	.2	.3
3.	Other Transportation	2.7	1.3	1.2	1.0	1.1	1.3	.9	1.2
4.	Education	.7	.5	.4	.4	.3	.3	.3	.3
5.	Public Health and Sanitation	7.0	2.6	2.0	1.5	1.2	.8	.4	1.4
6.	Agriculture	3.4	3.1	1.8	1.0	.7	.6	.8	1.1
7.	Social Welfare and Veterans' Payments	70.4	21.7	10.2	7.2	5.7	4.6	2.1	8.4
8.	Interest Payments on the Public Debt	4.9	2.2	1.3	1.0	.9	1.2	3.1	1.7
9.	"General" Expenditures	9.7	9.9	9.8	9.9	9.8	9.8	9.8	9.8
10.	PROVINCIAL AND LOCAL EXPENDITURES, total	63.6	31.2	24.4	20.5	18.6	15.3	11.5	19.6
11.	Highways	5.6	3.2	3.3	3.4	3.7	3.6	2.7	3.4
12.	Education	18.3	11.4	9.5	7.7	6.5	4.3	2.5	6.4
13.	Public Health and Sanitation	17.8	6.2	4.5	3.4	2.7	1.8	.8	3.1
14.	Agriculture	3.8	.9	.4	.2	.1	.1	.0	.3
15.	Social Welfare and Veterans' Benefits	13.0	4.8	2.1	1.4	1.1	1.1	.5	1.7
16.	Interest Payments on the Public Debt	1.0	.5	.3	.2	.2	.3	.7	.4
17.	"General" Expenditures	4.1	4.2	4.2	4.3	4.3	4.2	4.3	4.2
18.	TOTAL EXPENDITURES, ALL LEVELS	162.9	72.8	51.4	42.7	38.7	34.2	29.2	43.8

*/ Using the "broad income"concept, and assumption B for "general" expenditures.

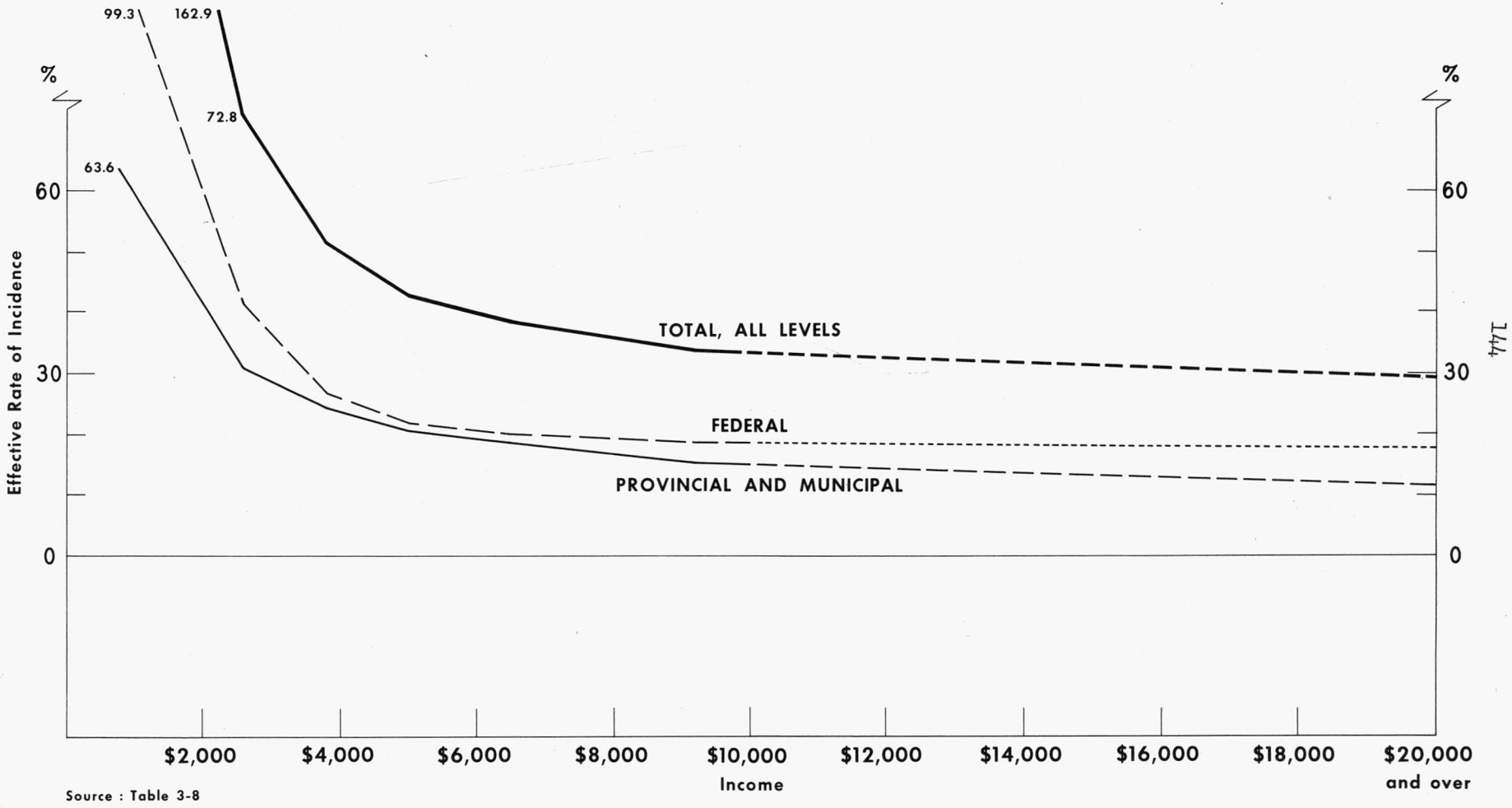
**/ The cost of providing public expenditures for each income bracket is expressed as a percentage of "broad income" in that bracket.

Note: Details may not add to totals due to rounding.

Source: Tables A-14 and A-15.

Chart 3-1

EFFECTIVE TOTAL EXPENDITURE INCIDENCE USING THE "BROAD INCOME" BASE



Source : Table 3-8

bracket, it does seem that there is some decline from the "under $10,000" income class to the "$10,000 and over" income class. 74/

The distribution of public expenditures for the federal government (line 1) is favourable to the lower income brackets up to an income level of approximately $5,000; beyond this level the effective rate of expenditure incidence is almost proportional. This regressive or "favourable to the lower income-earners" aspect is most noticeably effected by social welfare and veterans' payments, (line 7). This, of course, is to be expected as social welfare payments, such as, old age pensions, unemployment insurance benefits, war veterans' allowances and direct relief payments, are all heavily weighted toward families in the lower income brackets. The major expenditure at the federal level, "general" expenditures, has no effect on the distributive pattern because it is here included for the assumption that allocates it by the distribution of "broad income" (line 9). Interest payments on the public debt are favourable to the lower income brackets up to an income level of $7,000, beyond which they become favourable to the upper income brackets (line 9). This U-shaped schedule of rates is explained by the distributions of the two major owners of the debt: (1) the regressive pattern up to $7,000 is imparted by interest payments to individuals who own Canada Savings Bonds and other marketable securities, the value of which tends to be weighted toward the lower income classes; and (2) the progressive pattern beyond $7,000 is imparted by interest payments on the debt held by the chartered banks and corporations, the owners of which are heavily weighted toward the upper income brackets. Public expenditures on health and sanitation are a minor element in the total federal expenditure structure, but their distribution has some effect

on relative income positions — their effective incidence pattern is favourable to the lower income brackets over the first three brackets and almost proportional beyond (line 5). The remaining expenditures are relatively insignificant, both in their weight within the federal expenditure structure, and in their effect on the distribution of income. 75/

The distribution of public expenditures for provincial and municipal governments is favourable to the lower income brackets and becomes progressively less favourable as we move up the income scale, (line 10). The three major public expenditures which bring about this distributive pattern are (1) public health and sanitation, (2) social welfare and veterans' payments, and (3) education, although only the latter has a major weight in the total provincial and municipal expenditure. The incidence of public health and sanitation expenditures is extremely favourable to the lower income-earners over the first two income brackets and relatively less favourable throughout the rest of the income distribution (line 13). Two factors account for this pattern: first, hospital insurance expenditures are allocated to families that are weighted toward the lower income brackets; secondly, sanitation expenditures are incurred on behalf of all housing units which are also predominantly weighted toward the lower income brackets. The incidence of social welfare and veterans' payments is favourable to the lower income-earners up to an income of $7,000, beyond which it is almost proportional and negligible (line 15). The weight of these payments is relatively minor in the total provincial and local expenditure structure, but has a noticeable effect on the distribution of income because of the old age pension and direct relief components which are mainly incurred on behalf

of lower income-earners. The incidence of education expenditures is fairly favourable to the lower income-earners throughout the entire income scale, although it is most significant up to an income level of $3,000 (line 12). This pattern of expenditure incidence is caused by the weight of the distribution of elementary and secondary school children who are heavily located among the lower income brackets.

Of the remaining provincial and local expenditures, highways and "general" are the most important in the weight of the total expenditure structure. The "general" expenditures have no effect on the distribution of income, because they are here included on the basis of Assumption B. The incidence of highway expenditures is favourable to the lower income groups up to an income level of $3,000, beyond which the pattern is almost proportional (line 11). Interest payments on the public debt follow the same general pattern as federal interest payments (line 16). The incidence of agricultural expenditures is favourable to lower income-earners up to an income level of $4,000, beyond which it is negligible; this pattern reflects the fact that the distribution of farm operators used to allocate provincial agricultural expenditures is mainly weighted toward the lower income brackets (line 14).

In conclusion then, the standard pattern of expenditure incidence for all public expenditures is favourable to the lower income-earners and becomes progressively less favourable as we move up the examined income scale. We now turn to an examination of the total expenditure incidence when the "general" expenditures are allocated by the alternative assumptions discussed previously. It remains to be seen if this standard pattern is significantly changed when the relevant alternatives are examined.

THE EMPIRICAL RESULTS: FOR THE "GENERAL" EXPENDITURE ADJUSTMENT

Table 3.9 sets forth the total expenditure pattern for all four assumptions with respect to the allocation of "general" expenditures. Alternative A allocated "general" expenditures by a distribution of all families; alternative B (the Standard Case used in Table 3.8 above), allocated them by a distribution of "broad income", alternative C allocated them by a distribution of capital or investment income, and D allocated them by a distribution of disposable income. The evidence using A, B and D, while differing in degree, supports the same general conclusion: the incidence of all expenditures is regressive, or "favourable to the lower income-earners" throughout the examined income scale. In other words, the cost of providing public expenditures becomes less important relative to a family's income as income increases; and this holds true if a considerable portion of total public expenditures is allocated by families, by "broad income" or by disposable income.

When "general" expenditures are allocated by investment income, (alternative C), the incidence of all expenditures is regressive, or "favourable to the lower income-earners" up to an income level of $10,000, beyond which it becomes favourable to the upper income-earners. As investment income is less equally distributed than other income, one would expect a certain progressive element to appear in the expenditure incidence. Alternative C, therefore, while supporting the previous conclusions throughout the lower and middle income ranges, parts company over $10,000. This is the only significant qualification to the standard pattern of expenditure incidence: if the benefits from "general" expenditures are distributed similar to that of investment income, then the incidence of all government expenditures becomes more favourable to higher income-earners relative to

TABLE 3.9

THE INCIDENCE OF ALL GOVERNMENT EXPENDITURES FOR

ALTERNATIVE ASSUMPTIONS FOR "GENERAL" EXPENDITURES 1961 */

Family Money Income Class	Alternative Assumptions: A	B (Standard Case)	C	D
		Percentages **/		
Under $2,000	247.5	162.9	170.3	157.7
$ 2,000 - 2,999	87.1	72.8	69.4	73.0
3,000 - 3,999	56.7	51.4	44.2	52.0
4,000 - 4,999	42.9	42.7	34.7	43.6
5,000 - 6,999	35.8	38.7	30.0	39.1
7,000 - 9,999	28.2	34.2	25.9	34.3
10,000 - and over	18.9	29.2	35.0	28.4
Total	43.8	43.8	38.9	43.8

*/ For all levels of government, using the "broad income" base.

**/ The cost of providing public expenditures for each income bracket is expressed as a percentage of "broad income" in that bracket.

Source: Table A-14 and A-15. The alternative assumptions allocate "general" expenditures by a distribution of all families (A), "broad income" (B) - standard case, capital income (C), and disposable income (D). The lower overall rate for assumption C is explained by the fact that the benefits from "general" expenditures that accrue to non-resident owners of capital are excluded from the estimates.

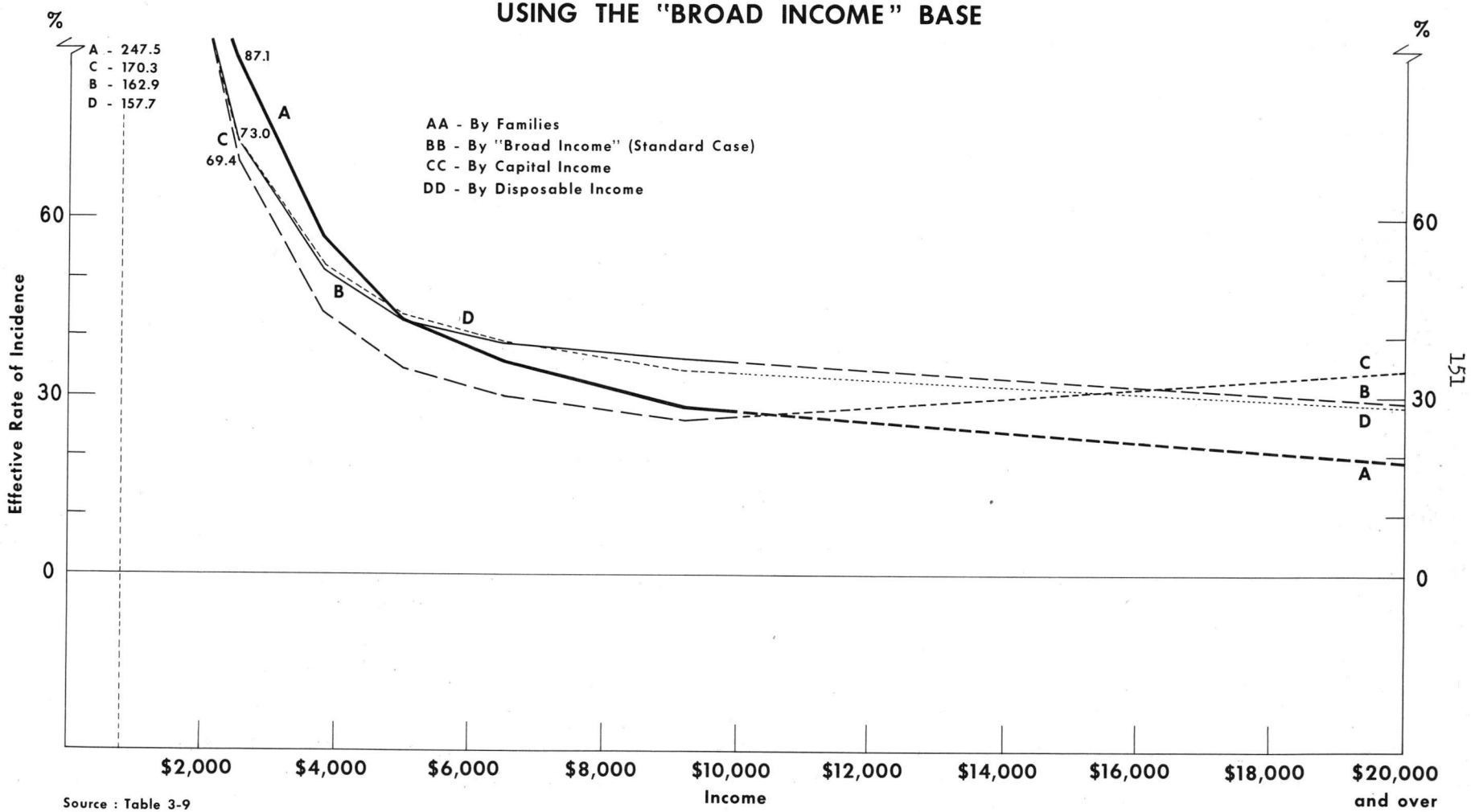
those families in the middle of the income distribution. Short of this qualification, the empirical results clearly suggest that the total expenditure incidence is favourable to the lower income-earners. 76/

These results are illustrated in Charts 3.2 and 3.3. Chart 3.2 merely reproduces the general patterns set forth in Table 3.9. The results for alternate assumptions B and D are combined into one line, since they are not significantly different over most of the income range; where they diverge, at the lowest and highest income bracket, this is noted on the chart.

In Chart 3.3, the upper and lower limit for each alternate case has been selected from Chart 3.2 and plotted. The result is a set of limits within which the "true" pattern of total expenditure incidence can be expected to fall, provided that our four "general" expenditure assumptions encompass the range of effective possibilities. This chart illuminates the general conclusion to be derived from this chapter; that is, total expenditure incidence is "regressive" over a considerable portion of the examined income scale (or favourable to the lower income brackets, becoming less favourable as we move up the income scale—up to an income of approximately $10,000). Chart 3.3. indicates that it may or may not continue this regressive pattern beyond an income level of $10,000.

Chart 3-2

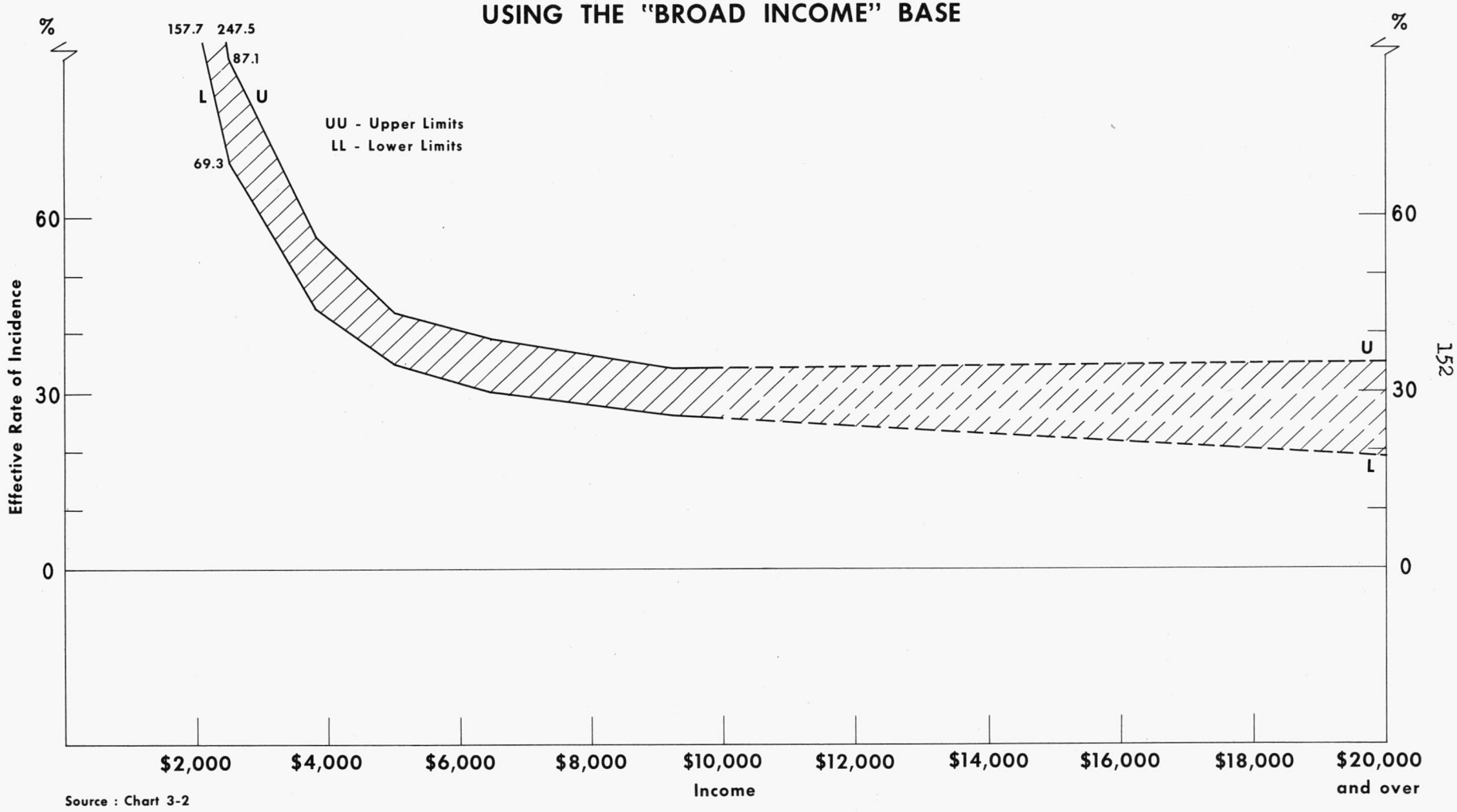
EFFECTIVE TOTAL EXPENDITURE INCIDENCE FOR "GENERAL" EXPENDITURE ADJUSTMENT USING THE "BROAD INCOME" BASE



Source : Table 3-9

Chart 3-3

EFFECTIVE TOTAL EXPENDITURE INCIDENCE WITHIN LIMITS OF THE ALTERNATIVE ASSUMPTIONS FOR "GENERAL" EXPENDITURES USING THE "BROAD INCOME" BASE



Source : Chart 3-2

CONCLUSIONS

In summing up then, this chapter has essayed to determine what effect the expenditure side of the fiscal system has on the distribution of income. The methodology behind the evidence has been described in detail, and its limitations have been examined at some length. While it is thought that the approach is a reasonable one, as has been pointed out, it is not theoretically an ideal solution, and, in all probability, a margin of error surrounds the final results that is greater for this chapter than for Chapter 2. 77/ Nevertheless, the evidence is such as to suggest that any reasonable margin of error could not invalidate the general distributive pattern set forth in Table 3.8.

One can therefore conclude that the incidence of all public expenditures is regressive or relatively more "favourable to the lower income-earners". As we move up the examined income scale, expenditure incidence becomes relatively less favourable; and beyond an income of $10,000, the incidence pattern seems to be almost proportional.

REFERENCES

1/ Not only will there be distributive effects arising out of the provision of certain public goods consumed (or available for consumption) in equal amounts by all, via taxes, but there will also be distributive effects arising out of the redistributive aim of the public sector (e.g. progressive individual income tax, old age pensions).

2/ For example, one often sees the claim that a progressive income tax redistributes income while a proportional tax does not. This statement holds only for some distributions of government expenditures, and not all; i.e., it implicitly must assume that the benefits from government expenditures are distributed in a particular manner.

3/ These comments, while of a general nature, apply directly to the discussion of general, non-allocable expenditures; see pp. 138-140.

4/ A tax-burden study alone can only indicate the differential tax burden imposed by the present tax structure over a proportional tax structure for any given expenditure pattern. If one attempts to conclude anything about the redistribution of income, then an implicit assumption must be made concerning the distribution of benefits; in effect, one of the previously mentioned alternatives is arbitrarily employed. It is not at all clear whether most investigators realize this limitation.

An examination of the expenditure distribution is occasionally rejected because it would involve too many value judgments. We feel that it is preferable to make explicit our value judgments, rather than to present a tax-burden study and draw conclusions on the redistribution of income which mask a particular hypothesis (or value judgment).

Besides, given the nature and magnitude of welfare services it is clearly unacceptable to assume, — explicitly, that all government expenditures are distributed proportionately to income.

5/ A quid pro quo relationship exists when an individual pays in taxes an amount equivalent in value to him of the amount of public services that he receives. A market-type relationship exists between each individual and the government.

For a more extensive discussion of the neglect of the benefit side of the public sector, see: James M. Buchanan, Fiscal Theory and Political Economy: Selected Essays, The University of Noth Carolina Press, Chapel Hill, 1960, especially pp. 8-23.

6/ This is not strictly true, as a family could receive zero benefits; however, not all families would fall within this category.

7/ John H. Adler and Eugene R. Schlesinger, "The Fiscal System, The Distribution of Income, and Public Welfare", in Fiscal Policies and the American Economy Kenyon E. Poole (ed.), Prentice-Hall, Inc., New York, 1951, pp. 359-421; Tibor Barna, Redistribution of Incomes Through Public Finance in 1937, Oxford at the Clarendon Press, 1945; Brownlee, O.H., "Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits," University of Minnesota Studies in Economics and Business, number 21, The University of Minnesota Press, Minneapolis, 1960, p. 2-38; Alfred H. Conrad, "Redistribution Through Government Budgets in the United States," in Income Redistribution and Social Policy, Alan T. Peacock, (ed.) Jonathan Cape, London, 1954, pp. 178-268; W. Irwin Gillespie, Public Expenditures, 1963, op. cit:, Richard A. Musgrave and Darwin Daicoff, "The Incidence of Michigan Taxes", Michigan Tax Studies: Staff Papers, Lansing, Michigan 1958, pp. 131-184; and Rufus S. Tucker, "The Distribution of Government Burdens and Benefits", The American Economic Review, vol. XLIII, May 1953, No. 2, pp. 518-543.

8/ The reader recognizes of course, that no public goods are "free" in the sense that they come without a price-tag. The price tag is a tax payment. The problem at hand is to determine the value of the services which the family receives to counterbalance its diminution of income due to tax payments.

9/ Some public expenditures may also affect the income position of families beyond the given polititial boundary due to a "spill-over" of the benefits from these expenditures. We have restricted our discussion to resident benefits, although, where applicable, we have allowed for an exported share of public expenditures to be deducted from the value of the total.

10/ The definition and evaluation of units of swamp eradication need not concern us here. Suffice it to mention that as the probability of an animal living to market-time approaches one, the profit-maximizing farmer would be better off than before. An increase in this probability-factor of a specified amount could be called a unit of swamp eradication.

11/ This statement effectively eliminates one fundamental problem in public finance — the revealing of preferences. The fact that there is no single optimal allocation of resources still remains.

12/ In fact, in the example given, farmer 1 definitely would not incur these costs.

13/ A more complete and detailed expenditure classification is to be found in Table A-11(a).

14/ This is a distinctly different point than the sharing of tax revenue. In Chapter 2, we treated the provincial portion of the tax rentals as if it were an actual provincial tax.

15/ Specifically, see the author's study, Public Expenditures, op. cit., Chapter II, where the methodology (and some of the relevant conclusions) parallels the development here.

16/ Buses, which provide the same service as passenger cars, may be included with them; they account for an insignificant amount of total vehicle miles travelled anyway; (less than 1% in the U.S.: U.S. Department of Commerce, Bureau of Public Roads, Highway Statistics, U.S. Government Printing Office, Washington, D.C., 1960, p. 80).

17/ The reader will remember that in Chapter 2 we did entertain several alternative assumptions. We have made no attempt to apply these alternative assumptions to the expenditure side of the picture.

18/ John R. Meyer, et al., The Economics of Competition in the Transportation Industries, Harvard University Press, Cambridge, Mass., 1959, pp. 71-72. See also: Richard M. Zettel, "Whither Highway-User Charges?" Proceedings of the 54th Annual Conference on Taxation, The National Tax Association, 1961, Harrisburg, Pennsylvania, 675 at p. 683; and D. Philip Locklin, Economics of Transportation, Revised Edition, Business Publications, Inc., Chicago, 1938, p. 754.

19/ One could conceive of a non-highway-user who was not a property owner. To the extent that roads and streets are provided for publicly-owned vehicles (such as, police cars, maintenance trucks, and mobile fire equipment) the highway costs are incurred on behalf of the general taxpayer. Such considerations are not allowed for here.

20/ For a more detailed discussion of these methods, see especially: The Final Report of the Highway Cost Allocation Study, Parts I through V, 87th Congress, 1st Session, House Document 54, U.S. Government Printing Office, Washington, D.C., 1961; U.S. Congress, House Ways and Means Committee, Hearings on the President's Proposals for Financing the Federal-Aid Highway, 87th Congress, 1st Session, "A Preliminary Allocation of Cost Responsibility by the Incremental Method," pp. 114-130, U.S. Government Printing Office, Washington, D.C., 1961; and William D. Ross, Financing Highway Improvements in Louisiana, Division of Research, College of Commerce, Louisiana State University, Baton Rouge, Louisiana, 1955.

21/ Ibid., p. 212-213 and 218; and The Highway Cost Allocation Study.

22/ Those data which do exist pertaining to the distribution of the value of land owned (for the farm sector in the 1958 Farm Survey) suggest that our assumption is a valid one to make.

23/ Meyer, op. cit., p. 72.

24/ This incremental cost estimation of relative cost shares may be examined in the following example. For a given system of highways assume that there are three vehicles, v (such that the axle weight of $v_1 < v_2 < v_3$), each of which travels m miles during a given period of time. The cost of providing the lightest vehicle, v_1, with a roadway is c_1 (a function of axle weight and vehicle weight and miles travelled). The second

24/ Cont'd

incremental cost, c_2, is the additional cost necessary to provide a road capable of sustaining v_2. Let S be the share of each vehicle in total costs; $M_1 = m_1+m_2+m_3$ and $M_2 = m_2+m_3$.

Then:
$$S_1 = c_1 - \frac{m_2 c_1}{M_1} - \frac{m_3 c_1}{M_1}$$

$$S_2 = c_2 + \frac{m_2 c_1}{M_1} - \frac{m_3 c_2}{M_2}$$

$$S_3 = c_3 + \frac{m_3 c_1}{M_1} + \frac{m_3 c_2}{M_2}$$

Given the c's (c_1 = \$60, c_2 = \$30 and c_3 = \$10) and m's (m_1 = 100, m_2 = 40 and m_3 = 10) then it is a straightforward matter to calculate the values for S (S_1 = 40%, S_2 = 40% and S_3 = 20%).

25/ Public Expenditures, Table II.3, p. 89 and the discussion of this table.

26/ We have made no attempt in this investigation to determine that portion of the user benefit accruing to consumers of passenger travel that is received by non-residents making use of Canadian roads. Similarly, we have not determined the share of gasoline taxes that these non-residents paid. Consequently, while both the domestic tax burden and the domestic benefit rate will be overstated to an unknown degree, the pattern of net fiscal incidence will be the same as if we had allowed for non-resident use of the roads.

27/ During 1960, \$306 million out of \$311 million was expended at the federal level, for non-highway transportation. For the purposes of this analysis all such expenditures have been allocated to the federal level. (See Table A-11(a)).

28/ The emphasis on the student and his family in this section is not meant to imply that no benefits from education accrue other than to those who receive an education; i.e., we do not deny that there are external benefits. Rather, our discussion examines "costs incurred on behalf of" various beneficiary groups, instead of "benefits received", precisely because it is difficult to determine the magnitude and distribution of the latter.

In the case of education, however, there is one benefit which is capable of a more explicit examination—the investment return to the student, in the form of a higher expected lifetime income. This capital investment via education has been examined extensively elsewhere; but (1) the nature of the analysis is not too helpful in the context of our investigation, and (2) the magnitude of the capital investment benefit to the student relative to other benefits of education expenditures is unknown.

Consequently, the treatment described herein does not examine the relative benefits received by students who have acquired various

28/ Cont'd

amounts of education, but rather, the costs incurred on behalf of such students.

Out of a growing literature in this field, see, for example: Gary S. Becker, "Underinvestment in College Education?", American Economic Review, Papers and Proceedings, volume 50, 1960, pp. 346-354; Herman P. Miller, "Annual and Lifetime Income in Relation to Education: 1939-1959," The American Economic Review, volume 50, No. 5, 1960, pp. 962-986; James Morgan and Martin David, "Education and Income", The Quarterly Journal of Economics, vol. 77, 1963, No. 3, pp. 423-437; and Theodore W. Shultz, "Education and Economic Growth," Sixtieth Yearbook of the National Society for the Study of Education, 1961, pp. 46-88; and "Investment in Human Capital", The American Economic Review, vol. 51 No. 1, 1961, pp. 1-17.

29/ Canadian Tax Foundation, Provincial Finances, Toronto, 1963, pp. 78-80.

30/ The distinction between elementary and secondary education is a relevant theoretical one because it is probable that per pupil expenditures are higher on the secondary than on the elementary level; in addition, it may well be that secondary school students are more progressively distributed with respect to income (at least one can say that, given the level of intelligence there is a higher probability that a secondary school student of a rich family will continue school for a longer period of time than a secondary school student of a poor family.)

31/ The percentage distribution of farm children is from the 1958 Farm Survey, op. cit., for 1958, and the percentage distribution of non-farm children is from the 1961 Survey of Consumer Finances, for 1961. The change in the distribution of non-farm children from 1958 to 1961 is almost imperceptible; one is led to expect, therefore, that unless there was a drastic change in the distribution of farm children (who, in 1958, were only ten per cent of all children) our derived series is not significantly in error. See Table A-1 for a detailed description of the series derivation.

32/ The same argument could be applied to almost any public expenditure which is primarily local in nature.

33/ D.B.S. University Student Expenditure and Income in Canada, 1956-57, the Queen's Printer and Controller of Stationery, Catalogue No. 81-509, Ottawa, 1959. A more recent publication is available but, unfortunately, it does not classify student parental income in a form useful for our purposes; specifically, parental income of students by faculty is presented, but there is no overall average for all students combined. Consequently, we did not use this study (D.B.S., University Student Expenditures and Income in Canada, 1961-62, Part II, cat. no. 81 - 520, Queen's Printer and Controller of Stationery, Ottawa, 1963).

34/ See Table A-1, line 36.

35/ This statement is not strictly true: see reference 33.

36/ One possible alternative might be to consider married students as a family unit and allocate their share in the cost of higher education to the student family unit. If married students were distributed, similar to all families (by income class), then some adjustment could possibly be made to allow for their weight in the estimated distribution of university students, (line 36, Table A-1). However, there is nc reason to assume that this is so; and short of some such assumption, no adjustment is feasible.

37/ Even if our assumption turns out to be unfounded, it is unlikely that the small percentage of married students (nine per cent) is sufficient to alter the general pattern of the distributive series.

38/ Burton Weisbrod discusses this point in some detail in: The Economics of Public Health, University of Pennsylvania Press, Philadelphia, 1961, pp. 17-26.

39/ In this context, a high cost province is one in which the per capita cost of the specified in-patient services in that province is high relative to the per capita cost of the specified in-patient services in Canada.

40/ This is necessarily a capsule summary of hospital care in Canada. For a more detailed picture see the Report of the Royal Commission on Health Services and also: Canadian Tax Foundation, The National Finances, 1961-62, Toronto, 1961, p. 82, and Provincial Finances, op. cit., pp. 111-114.

41/ Needless to say, it was impossible to test this assumption within the confines of the present investigation.

42/ Even this qualification may not be strictly accurate; communicable diseases may lead to bunching in various neighbourhoods and if there is a correlation between income and type of neighbourhood, this will lead to a non-random bunching by income class.

43/ See Chapter 2, Table 2.2.

44/ In this case, that portion of the cost which was incurred on behalf of foreign consumers (the exported portion: 18%), was deducted from the estimates.

45/ See: The National Finances, op. cit., pp. 118-125; and D.B.S. Canada Year Book, 1960, Queen's Printer and Controller of Stationery, Ottawa, 1960, pp. 448 ff.

46/ For a description of the development over time and the specific nature of Canada's price-support policy, see: Lucy I. Morgan, "Price Supports and Farm Surpluses: The Canadian Experience", Economics: Canada, edited by M.H. Watkins and D.F. Forster, McGraw-Hill Company of Canada Ltd., Toronto, 1963, pp. 47-55.

47/ The Canadian deficiency payments for hogs and eggs have one distinctive feature in that payment is made only on a limited amount of the output of each farmer (the subsidy payment would be less than $PEFP_1$); Ibid., p. 51.

48/ It is also necessary to note that the implication of this treatment is to suggest a redistribution of real incomes from taxpayers to farm factors. This is clearly the case with respect to deficiency payments. However, the true redistribution under crop-purchase-and-storage payments is from taxpayers and consumers to farm factors. It is possible to examine the farm sector from this total impact point of view, but it necessarily involves much more time and effort (in estimating market structural equations, demand and supply elasticities for each affected crop) than the final result would merit. For example, see the author's Public Expenditures, op. cit., Chapter VI.

49/ Fifteen per cent of such expenditures are in the nature of expenditures on goods and services: see Table A-11(b).

50/ Of course, not all social welfare programmes are geared to this objective; family allowances is the most prominent exception.

51/ This section does not discuss the recent budget proposal to raise the effective age limit to eighteen for those children who remain in school. (House of Commons Debates, Queen's Printer, Ottawa, Canada, volume 109, No. 20, 2nd session, 26th Parliament, March 16, 1964, pp. 981-982). This proposal was subsequently implemented outside the Family Allowance Act. The Youth Allowances Act, 1964, C23 provides for a monthly payment of $10 for children of the ages of 16 and 17 who remain at school.

52/ See: Table A-11(b)

53/ See, for example, the studies of: John J. Carson and John W. McConnell, Economic Needs of Older People, The Twentieth Century Fund, New York, 1956; Robert Dorfman and Peter O. Steiner, The Economic Status of the Aged, University of California Press, Berkely, 1957, and Robert Dorfman "Economic Implications of an Aging Population", and Peter O. Steiner, "The Size, Nature, and Adequacy of the Resources of the Aged", American Economic Review: Papers and Proceedings, volume XLIV, May 1954, No. 2, pp. 634-660; and Lenore A. Epstein, "Money Income of Aged Persons: A 10-year Review, 1948 to 1958", Social Security Bulletin, volume 22, number 6, June 1959, pp. 3-11.

54/ The percentage distribution of families alone (not including unattached individuals) whose head is over sixty-five years of age by increasing income brackets is as follows: 36.2%, 16.9%, 12.7%, 9.1%, 12.8%, 8.9% and 3.5% (source: 1961 Survey of Consumer Finances, Table 9, p. 23).

55/ As of 1961 the annual pension benefit for a veteran, the rank of Colonel or under was $2,160 for total disability and $1,656 for death. See: The National Finances, op. cit., p. 73.

56/ During 1961, the annual income ceiling above which such allowances ceased was $2,088 (including the veterans' allowances) for a married couple.

57/ While the latter assumption is not strictly true, it is unlikely that it is a significant source of error. The assumption implies that these veterans are now between the ages of forty and sixty-four, and is suggested by United States official sources which classify the majority of World War II veterans by age as being from 25 to 44 at the time of hostilities.

58/ For suggestions of such a positive correlation, see: 1959 Survey of Consumer Finances, op. cit., pp. 32 and 41.

59/ The National Finances, op. cit., pp. 96-98.

60/ The actual wage loss restored may not equal these stated percentage levels. In the United States, the statutory aim of unemployment insurance is to restore 50% of a wage loss due to unemployment. However, such evidence as is available suggests that when due consideration is given to (1) maximum limits set on benefits paid in several states, and (2) the length of time during which benefits are paid out, the resulting wage loss restored is no more than 20-25 per cent. See, for example: Richard A. Lester, "The Economic Significance of Unemployment Compensation, 1948-1959," The Review of Economics and Statistics, volume 42, 1960, No. 4, pp. 349-372; Ida C. Merriam, "Social Security Programs and Economic Stability," Policies to Combat Depression, A Conference of the Universities - National Bureau Committee for Economic Research, National Bureau of Economic Research, Princeton University Press, Princeton, 1956, pp. 205-235; and George F. Rohrlich, "Measuring the Impact of Unemployment Insurance Benefit Payments in a Recession," The Labor Market and Employment Security, July 1958, pp. 5-10.

61/ Interest payments on the federal debt were $653 million, while provincial and municipal debt commitments amounted to $184 million (Table A-11(a)).

62/ This is possible in a full-employment economy where the government's internal borrowing does not increase the supply of available resources. Resources must be released from alternate uses in the first instance, but the relevant factor is whether the release is from present consumption or capital formation. It has been demonstrated that loan finance can divide the cost of a public project among different generations that overlap in time; see, R.A. Musgrave, The Theory of Public Finance, op. cit., pp. 558-564.

63/ Another way of looking at these interest payments is to view them as the opportunity cost of reconciling the choice between present and future satisfaction of social wants with the choice between present and future satisfaction of private wants.

64/ Ibid., pp. 581-590.

65/ Brownlee and Conrad have made a start in the empirical estimation of the distributional effects of stabilization policy, albeit their main concern is monetary policy. See: Oswald Brownlee and Alfred Conrad, "Effects Upon the Distribution of Income of a Tight Money Policy," in Stabilization Policies, a research paper prepared for the Commission on Money and Credit, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1963, pp. 499-558.

66/ While it is not our intention to labour the point, this treatment is no different than the treatment of unemployment insurance transfer payments. There, we allocated the benefits of unemployment insurance transfer payments to the recipients of these transfers. Here, we impute the benefits of interest payments on the public debt to the holders of that debt. In both cases, the approach is necessarily abstract and over-simplified, but, nevertheless, consistent.

67/ The discussion throughout this section is in terms of the federal debt. It applies equally well, however, to the provincial and municipal debt. The appendix contains tables which outline the same analysis on the provincial and municipal levels.

68/ Elsewhere, the author was able to estimate the total interest receipts by type of owner given the portfolio mix of public debt instruments and the average return per year for each instrument (United States data). The relative share of interest received by each owner so calculated was not significantly different from the relative share of the value of debt held by each owner. See: Public Expenditures, op. cit., Chapter VII.

69/ The exclusion of interest payments paid to non-residents is not meant to suggest that that portion of the public debt which is externally held has no effect on the distribution of income. There is a distributive effect, and given a balanced budget, it would show up as part of the distributive pattern of the net positive burden that accrues because of the interest paid to foreign owners of the debt. The particular distributive effect would depend on the distribution of the marginal tax dollar. However, where budget imbalance is not solely the result of the foreign interest payment, then the distributive impact attributable to such interest payments is inseparable from the total distribution effect attributable to the entire imbalance.

70/ Tables A-11(f) and A-11(g) provide a detailed description of the allocation of interest payments to type of owner and by income bracket for both the federal and provincial (including municipal) debt.

71/ The series for liquid assets encompasses current account deposits, savings deposits with chartered banks, all other savings deposits, Government of Canada Savings Bonds and other bonds.

72/ The income concept used is "broad" income. This is virtually dictated by the fact that "adjusted broad" income includes imputed benefits from government expenditures, of which we are determining the distribution of the "general" portion here.

73/ This accounts for the difference in magnitude of "general" expenditures between Assumption C and Assumptions A, B and D. (Tables A-12 and A-13.)

74/ Throughout this report the charts exhibit a broken line beyond the $10,000 income level. This broken line is used to reflect our reservations about the effective rate for the $10,000 and over open-end income class, mentioned above (p. 57).

75/ These conclusions are also substantiated by the evidence when "the adjusted broad income" base is used, except that the total federal expenditure pattern becomes approximately proportional at an income level of $4,000. See: Table A-16.

76/ The "adjusted broad income" base gives rise to the same conclusions; see: Tables A-16 through A-19.

77/ See especially: pp. 87-95.

CHAPTER 4--NET FISCAL INCIDENCE

We have now examined the incidence of the total tax structure, and the effect of all public expenditures on the distribution of income. It remains only to determine the net fiscal incidence, that is, the change in a family's economic position due to both the tax and expenditure policies of the public sector. This chapter examines the net fiscal incidence of the entire public sector. 1/

Before turning to an examination of the evidence pertaining to the relative income redistribution that accompanies the present tax and public expenditure policies of the public sector, however, it might be wise to consider two factors that have some bearing on the interpretation of that evidence. In the first place, there is an imbalance between total taxes and total public expenditures. 2/ In the second place, there are difficulties in and limitations to, an investigation of this kind of both a theoretical and statistical nature most of which have been mentioned before—that need to be summarized, and taken into consideration.

THE EXISTENCE OF A DEFICIT OR SURPLUS

Throughout the analysis government expenditures have been taken to reflect a positive addition to, and taxes have been considered to reflect a subtraction from, income. The general tenor of the analysis implies a balanced public sector. However, the public sector was not balanced in 1961 and the existence of an imbalance requires that it be considered within the framework of the analysis.

The entire matter is further complicated because the imbalance in the two components of the fiscal system is not made up entirely of what is ordinarily called a deficit (or surplus). The "deficit" that emerges in this analysis is the result of three factors. In the first place, an ordinary deficit occurs when the public sector's revenues are not sufficient to cover the expenses of public expenditures and transfer payments. In the second place, a deficit appears in the calculations when for one reason or another, it is necessary to exclude from the investigation at hand a greater amount of revenues than of expenditures. In the third place, a deficit arises if the amount of exported taxes exceeds the amount of exported public expenditures. These three factors add up to the "deficit" that appears in our investigation, and that is presented in the following table. Each of the "deficit" components is discussed below.

TABLE 4.1

THE PUBLIC SECTOR "DEFICIT"

	Item	Expenditures (1)	Taxes (2)	"Deficit" (3)
			Millions	
1.	Totals	$ 13,026	$ 10,924	$ 2,102
2.	Less non-tax revenues and payments to other governments	892	934	
3.	Adjusted Totals	12,134	9,990	2,144
4.	Less Exported Shares	363	661	
5.	Working Totals	$11,771	$ 9,329	$ 2,442

Source: Table A-3(a) and A-11(a), with adjustments.

Let us consider, first of all, the normal deficit that arises because of the fact that total revenues are not equal to total expenditures. The totals in line 1, Table 4.1, are obtained by adding to the official statistics in D.B.S., Financial Statistics some data from the National Accounts. 3/ During 1961 total public expenditures exceeded total tax payments. Neglecting for the moment the other "deficit" components, one can conclude that the general level of the net fiscal schedule is going to be higher than it would have been had sufficient taxes been collected (and included in our analysis) to take care of the deficit.

If the additional taxes necessary to cover the deficit had been collected, and if they had been distributed proportional to the distribution of income, then there would have been a proportional downward shift in the net fiscal schedule set forth in Chart 4.1. 4/ Short of this assumption, which is somewhat restrictive, the existence of the deficit has an effect not only on the level but also on the distribution of the net fiscal incidence pattern.

These introductory remarks, consequently, do not help us in integrating the implications of a fiscal imbalance — deficit or surplus — into the framework of our analysis. In fact, such an integration would be a very difficult task because the particular set of implications depend upon the theory of income determination that is assumed to underlie the entire analysis. For example, 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 increases), a public sector is introduced. In our "classical" economy the real incomes of A and B prior to the introduction of the public sector are $1,000 each; the government collects taxes and provides public expenditures such that a net fiscal amount of $200 is paid to A. 5/ B experiences no change in his net position and the total deficit is recorded as $200. 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 would have imputed a net fiscal rate of + 20% to A, and zero to B.

However, 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 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 real fiscal burden to B.

This much can be said, but it is not a positive guide to corrective action. Alternative models of income determination require different reasoning and lead to different conclusions as to the distributive effect of a surplus or deficit. 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. These complications could lead us into an enumeration of various theoretical cases with no clearly preferable method of adjusting for the imbalance. Such an investigation would take us much beyond the limits of this study.

Conversely, it would be inappropriate to consider the effective net fiscal incidence solely as a measure of income redistribution. The inclusion of the deficit, which serves to augment the net benefit portion of the schedule, acts, in effect, so as to improve the economic position of all income classes. The deficit may redistribute income, but it does so in the process of increasing total income (as we have defined it). Consequently, at the end of this section we propose two expedient remedies to allow for this deficit. We do not pretend that these remedies are an adequate treatment of the problem; we only contend that they provide some basis of determining in an approximate manner, where, on the examined income range the pattern of net benefits becomes one of net burdens.

The second "deficit" component occurs because, for the purposes of this analysis, it was considered necessary to exclude some revenues and expenditures, with the former exceeding the latter. On the tax side of the analysis we chose to exclude those revenues, such as, sales of government assets, that are clearly commercial, non-tax transactions, and, in addition, those taxes collected on income going abroad. Some revenue sources that were difficult to allocate were also deducted. On the expenditure side of the analysis the major excluded item was intergovernmental transfers; these items could only be included at one level of government. In addition, post office expenditures were excluded (the

post office deficit was included in "general" expenditures). The exclusion of certain revenues and certain expenditures for purposes of the analysis led to the existence of an additional deficit in the public sector.

However, the above comments concerning the first "deficit" component do not necessarily apply to the existence of this second deficit. This is so because, in certain respects, the second deficit is an artificial creation of our investigation, and it may not accurately reflect the interaction of the public and private sectors of the Canadian economy. Where this is the case the created deficit masks a balanced public sector in the underlying economy, and there would be no distributional effects on the true distribution of net benefits or burdens; there would merely be a proportional shift in the net fiscal incidence curve.

Taxes on income going abroad, on the other hand, pose a separate question. To the extent that the second deficit occurs because of the elimination of taxes (withholding) on income going abroad, it becomes a case where there seems to be a true net benefit—in total—to Canadian families. That is, in the aggregate, Canadian families can receive benefits from public expenditures that exceed their tax payments in the context of a totally balanced public sector: taxes on foreigners, in effect are used to provide public services to Canadians. Again, this much can be said, but little can be done about measuring or allowing for this true net benefit and its distribution by income class.

For example, let us assume that in a simplified economy total taxes, R—comprised of an income tax on all income, T, and a withholding tax on any income going abroad, W—are equal to total expenditures; i.e., the budget is balanced. In this situation resident families, in the aggregate, receive a net benefit in their relations with the public sector;

public expenditures, valued at W, are financed by non-residents. Two points are relevant here: in the first place, this is not necessarily a desirable state of affairs. Our entire investigation has presumed that the public sector exists to make effective the wishes of the majority of families in the provision of certain goods and services that are incapable or less capable of being provided by the private sector. In other words, the optimal public sector is determined by preferences of individuals, preferences that are presumably backed by a willingness to pay for the provision of these public goods. In such a setting there is no case for taxing non-residents.

This point must be qualified in two situations. To the extent that non-residents receive benefits from public services provided by and for residents, then there is a case for taxing them. 6/ In addition, it may be desired to utilize fiscal policy to pursue goals other than the provision of goods and services, stabilization and income redistribution. If, in the pursuit of these other goals, it is desirable to "penalize" foreigners, then a tax on non-residents may fall within the choice of "desirable" policies.

In the second place, it is impossible to determine the distribution of the net positive benefit without some recourse to the underlying model of income determination, and without realizing that this net positive benefit is, in effect, a "deficit" on the public sector (the deficit is valued at W). In an economy where full employment is maintained by appropriate fiscal and monetary policies when some income accruing to non-residents is withdrawn from the country, then a withholding tax of W on this income does not act to reduce resident spending power, but the goods and services provided to residents through the public sector do

increase spending power. 7/ At full employment, the deficit generates an inflationary pressure on prices; the same analysis as with respect to the first "deficit" also applies. And as we noted above the deficit has different effects on the distribution of income depending on the assumed model of income determination.

The third "deficit" component occurs because those taxes that are assumed to be borne by foreigners are greater than the benefits from those public expenditures that are assumed to be received by foreigners. In other words, exported taxes exceed exported expenditures. The resultant "deficit" again, is a true net benefit; that is, Canadians receive more public services than they pay for even though the total public sector may be in balance. In general, the same comments apply here as were set forth in regard to the second "deficit". In this case, however, there is no case to be made for a differential between exported taxes and exported expenditures even though it might be thought desirable to have foreigners pay for the benefits they receive from Canadian public expenditures.

And the point about such "deficits" being a part of deliberate policy is less well taken here, because the differential is more a result of policy decisions with respect to the tax mix and the structure of public expenditures than it is a result of a policy specifically aimed at increasing taxes on foreigners. For example, to the extent that the proportion of taxes on capital income increases relative to taxes on wage income, then the proportion of taxes exported increases, and, given an identical expenditure policy, the differential increases. The third "deficit" seems to be an incidental side-effect of policy decisions primarily aimed at other objectives.

But while there is clearly no rationale for the existence of such a "deficit", it does exist, and it operates in the manner of a deficit even though the total public sector might be in balance. Consequently, the determination of the distributional implications of the "deficit" faces the same difficulties as those outlined before with respect to the previous two "deficits". Here, as there, we have decided to make no attempt to measure the distributive effect of this kind of "deficit".

So far, the discussion, while touching upon some of the theoretical issues concerning the deficit that complicate the derivation of the distribution of net fiscal incidence, has not been able to develop a set of empirical techniques to deal with these issues. We are, therefore, left in the uneasy situation of having raised questions to which useful answers do not exist. However, it is necessary to present a set of estimates, even though they may be highly qualified; and it is to this task that we now address ourselves.

The empirical results presented in a later section are set forth in two major divisions. In the first place, the general pattern of net fiscal incidence is set forth for data that include the 1961 deficit. In other words, the distribution of net fiscal incidence is obtained by subtracting the distribution of effective tax rates from the distribution of effective benefit rates, both of which have been derived before. This pattern will be examined in some detail. A first tentative attempt is made to eliminate the "deficit" by assuming that extra taxes necessary to do this are distributed in proportion to the various income classes.

The second major approach that is set forth is primarily an expedient to eliminate the "deficit" in a meaningful sense. To this end,

it is assumed that extra taxes, sufficient to pay for those expenditures financed out of the deficit, are collected—with no effect on the underlying distribution of total income. The extra taxes are distributed in a manner similar to the distribution of the total tax burden, and the resulting set of net fiscal incidence rates has an overall "deficit" of zero. In this case, the zero line can be taken as the line of zero net redistribution of incomes.

This treatment is not entirely satisfactory. It assumes that there is no change in the underlying distribution of income due to the existence of the "deficit"; and it assumes that the extra taxes are distributed in a particular manner. It is only in this rather restrictive sense that we have eliminated the deficit. The reader would undoubtedly be surprised if we were able to satisfactorily separate the net benefits due to the "deficit" on the public sector from the net benefits (positive or negative) due to the tax and public expenditure policies of the public sector. However, we do not expect that this particular difficulty invalidates the usefulness of having some general idea as to the redistributive effect of the fiscal system on the distribution of income. While we may not be able to explicitly say at what exact income level the net benefits become net burdens, we are still able to suggest an income range within which it is our considered opinion that the cross-over occurs.

A RESUME OF DIFFICULTIES

Throughout this study we have had several reservations and qualifications, and it may prove worthwhile to draw them together before we proceed to examine the pattern of net fiscal incidence. In the final

analysis, the empirical results must be evaluated in the light of these qualifications and admitted difficulties. One may distinguish between difficulties arising out of, or giving rise to, theoretical and statistical difficulties.

There are several theoretical difficulties which arose in this study, some of which were adequately treated, and some of which remain to qualify the final results.

With respect to the distribution of income used, against which to set taxes, a theoretical objection has been raised by Prest. 8/ The process of adding in, or subtracting out, changes in income due to changes in taxes implies the assumption that the "original" distribution (the distribution short of such changes) of income remains unchanged. However, changes in tax policy do generate adjustments throughout the economy, adjustments which could lead to a different distribution of "original" income. This criticism is granted at the outset; to the extent that our procedure neglects the distributional implications, other than those directly concerned with taxes and expenditures, the precision of our "effective" rates may not be accurate. In these circumstances, one is perhaps best directed to examine the position of one income bracket vis-à-vis another for higher or lower levels, rather than to accept the numerical value accurate to one decimal place. 9/

This investigation has utilized two income concepts, and we explained in Chapter 1 why it was thought desirable to follow this course. However, other income concepts are available and the reader may prefer to use them. We do not think that the results would be

significantly altered if either a strictly money income base, or one of the other income formulae (Table 1.1) were used. However, there would be some change in the numerical magnitudes of the empirical results. We are able to recognize this point without altering our basic results.

The process of allocating the revenue from the various taxes to broad economic categories—factor shares or consumer expenditures - relies exclusively on the theoretical deductions discussed at length in the text of this paper. Until such a time as meaningful empirical evidence becomes available, this is the only feasible approach. It is not likely that any such empirical evidence would invalidate our results; we have already allowed for alternative theoretical deductions for several taxes—with no appreciable effect on the general pattern of tax incidence.

Chapter 3 examined the distribution of government expenditures. We mentioned there that the empirical results were the result of partially examining benefits received—as in the case of "general" expenditures— and partially examining the costs incurred on behalf of various income groups. In other words, we did not measure exactly "benefits received", and to this extent the results are less than perfect. The theoretical difficulty of determining the value of benefits received from all public expenditures dictated the course followed.

An additional point must be made about the interpretation of the final chapter; and that concerns the meaning to be attached to redistribution of income in the context of this investigation. The general pattern of net fiscal incidence reflects how all families in any one

income class find their position altered relative to all families in any other income class, due to the existence of the public sector. It is redistribution by income class. This is a valid and vital consideration and one that is capable of being examined in some depth, to which we hope we have contributed in some small way. It is important, however, to caution the reader that income redistribution via income groups does not necessarily delineate income redistribution among families of different socio-economic characteristics. In other words, our results do not measure the exact benefit of income redistribution to all families.

We have touched on this point previously, but as it is crucial to a proper interpretation of the results, it may be wise to explain it in some depth. On the tax side of the analysis, tax incidence by income class over the lower income brackets is probably very close to the "true" incidence experienced by all families, because the major tax components—taxes on consumption and property—are borne by all lower bracket families. The regressive tax pattern over the lower income brackets, in other words, is generally indicative of the burden borne by all families in those brackets.

On the expenditure side of the analysis, expenditure incidence by income class over the lower income brackets is not necessarily very close to the "true" incidence experienced by all families, because some specific public expenditures, such as those on social welfare, are incurred on behalf of some lower bracket families, and not others. Since social welfare expenditures tend to be incurred on behalf of families who are weighted toward the lower income brackets, the net effect is to increase the total benefit allocated to the lower income

brackets. For example, the aged-retired, the unemployed, young persons in the labour force and families with a low lifetime income, all are more heavily located in the lower income classes. The aged-retired receive old age pensions; the unemployed receive unemployment benfits; young workers may receive no social welfare benefits, nor may families with a generally low income level. Yet, since all these families are located in the lower income brackets, they seem to experience the aggregate benefits allocated to those income brackets by our methodology. 10/

But it is just this interpretation that cannot be given to our results. Income redistribution by income class does not necessarily throw any light on income redistribution by families. We only labour this point to dissuade the reader from drawing unjustified conclusions from the results of our investigation. In fact, this is one reason why redistribution by income bracket may have few or no policy implications for effective redistribution among different families.

Finally, the first section of this chapter examined the consequences of the existence of an imbalance in the public sector. The inability to satisfactorily eliminate (both theoretically and empirically) the effect of the imbalance on the distribution of income poses an additional difficulty in a study of this nature; and it suggests that the final results be interpreted with extreme caution.

The study has also confronted several statistical difficulties; it is not thought that any one — or even all — of these statistical difficulties significantly alters the final results. In total, these problems do no more than suggest a margin of error about the numerical magnitudes

that might render the patterns slightly more or less progressive.

First, the distributive series for factor incomes and consumer outlays on various broad categories of goods are on a calendar year basis, while government expenditures and taxes are mainly on a fiscal year basis (with the municipal sector on a calendar year basis). In addition, our basic data from Financial Statistics had to be supplemented with data from the National Accounts.

Secondly, there is some sampling error associated with all survey results that is attached to the distributive series used throughout this study. In addition, the combination of farm, urban and military data may lead to a slightly higher than average error. However, errors in the distributive series are likely to be a minor source of error in the overall picture.

Thirdly, several of the distributive series may be subject to a margin of error that exceeds the normal sampling error. It is believed that investment income is significantly understated in the Survey data. 11/ We have assumed that the understatement is distributed neutrally, but it may not be. In addition, we have had to derive an estimate for several series, such as, World War II veterans, and the beneficiary of hospital care public expenditures. In these situations, the derived series could be considerably in error. However, it is unlikely that even a series with a considerable error would serve to alter, in any significant sense, the final pattern of incidence.

These difficulties serve, in minor ways, to qualify the precision of the final empirical results of this chapter. Unfortunately, the nature of our investigation has precluded the derivation of a statistical

margin of error surrounding the empirical estimates for the tax, expenditure and net fiscal incidence schedules. However, provided that the errors associated with our work are randomly distributed throughout the examined income scale, it is not expected that even a "considerable" margin of error would permit the existence of a schedule, (tax, expenditure, or net fiscal incidence pattern) that would be significantly different from the corresponding estimated schedule. 12/ This is explained by the fact that the incidence schedules are sufficiently pronounced that only a rather large margin of error would permit the existence of both a progressive and regressive pattern over the same income range.

We have now completed our reservations about the inherent problems of a study of this nature. We have also tried to caution the reader from drawing hasty policy conclusions from the empirical results in this chapter. While we believe that the results are important in providing an interesting examination of income redistribution, we nevertheless, admit that this is only one of several possible measures of redistribution.

THE EMPIRICAL RESULTS: THE STANDARD PATTERN OF NET FISCAL INCIDENCE

When the distribution of effective tax rates is subtracted from the distribution of effective expenditure rates the result is net fiscal incidence, the distribution of which is set forth in Table 4.2. The pattern of net fiscal incidence is one method of describing the redistribution of income that is effected by the present tax and expenditure structures. In other words, it indicates the relative net benefits or burdens that are experienced by various income brackets.

TABLE 4.2.

EFFECTIVE NET FISCAL INCIDENCE */ 1961

Family Money Income Class	Federal Level	Provincial and Municipal Level	Total All Levels
		Percentages **/	
Under $2,000	72.0	30.9	102.8
$ 2,000 - 2,999	24.6	15.3	39.9
3,000 - 3,999	9.0	10.1	19.1
4,000 - 4,999	4.9	7.4	12.3
5,000 - 6,999	0.8	5.1	5.9
7,000 - 9,999	-1.8	1.8	0.0
10,000 and over	-6.0	-3.2	-9.2
TOTAL	4.0	5.1	9.1

*/ For the Standard Case. Details may not add to totals due to rounding.

**/ The difference between expenditures received and taxes paid, by income class, is expressed as a percentage of the distribution of "broad income", Table A-4, line 20.

Source: Table A-21.

Table 4.2 presents results for the standard case that we referred to before. The effective rates are obtained by expressing the amounts of redistributed income as a percentage of the "broad income" base, and "general" expenditures are included for Assumption B (distributed similar to "broad income"). The following section examines the patterns of net fiscal incidence for alternative assumptions. In addition, Table 4.2 presents a general pattern that produces an overall deficit (or net benefit) rate of 9.1 per cent; as a result, part of the net

benefit is really the interaction of the deficit. If the deficit were distributed proportionately among all income brackets then the "true" point of zero net fiscal incidence would not be along the zero redistribution line but along the +9.1 redistribution line. This point is marked on Chart 4.1; it must be examined when we attempt to determine where positive redistribution becomes negative.

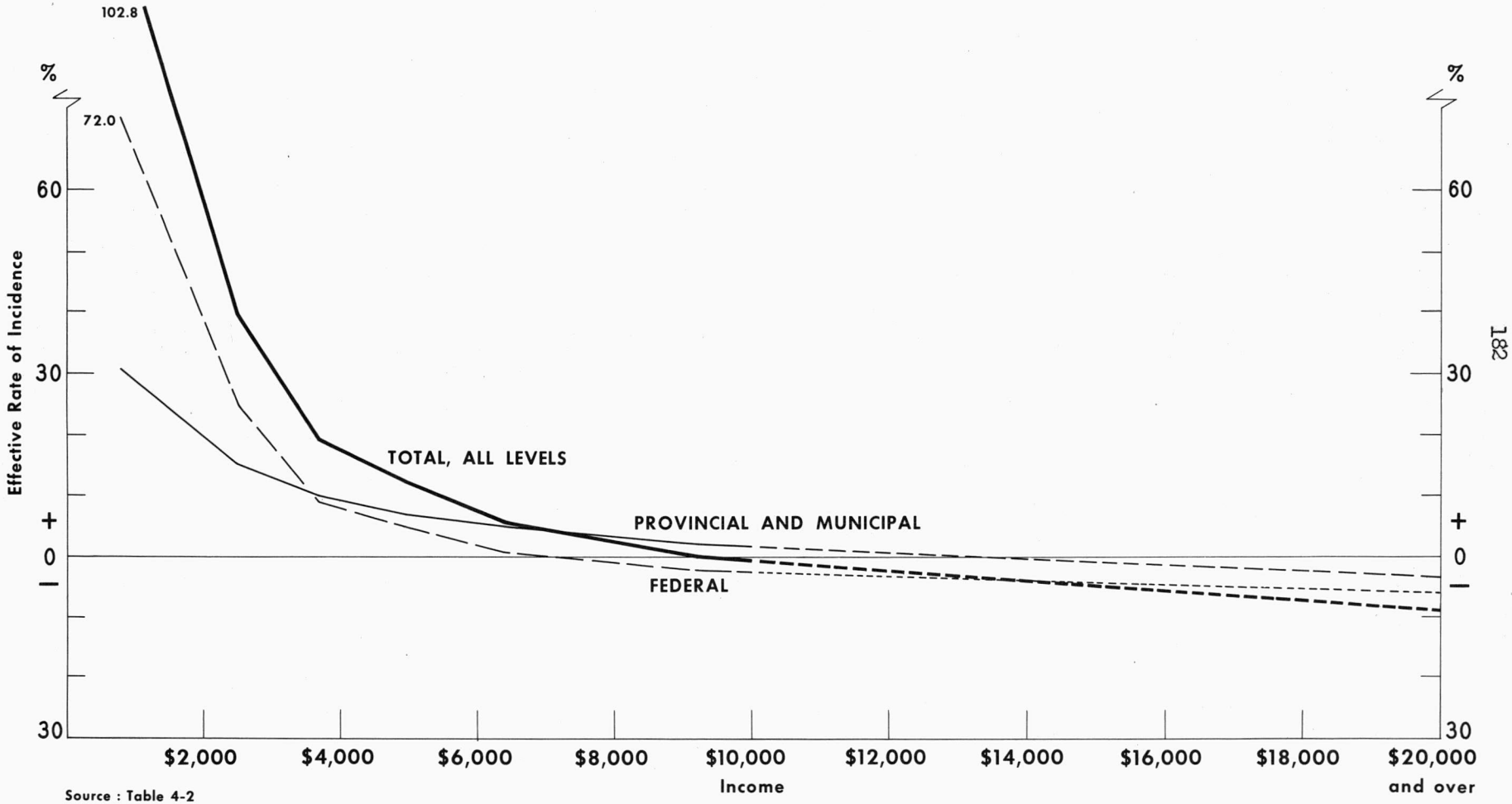
The general pattern for all levels of government combined is clearly favourable to the lower income classes, and becomes less favourable as income increases. The lower income classes experience a net benefit in their relation with the public sector; this net benefit — related to the income base — decreases continually as income increases until at some point it becomes a net burden. In the upper income ranges a net burden is experienced.

In other words, the empirical results do support the conclusion that there is redistribution from the upper to the lower income classes. It is also apparent that the net benefit experienced by the lowest income classes, decreases relatively, as income increases. On the other hand, it is not immediately clear where net benefits cease and net burdens begin. First, the curve in Chart 4.1 includes the net benefit attributable to the deficit. Secondly, the unknown margin of error, that we have repeatedly mentioned must exist, precludes the selection of one precise cross-over point on the income range.

Such difficulties are not easily overcome. With no adjustment for the deficit, net benefits become net burdens in the neighbourhood of an income of $9,000. With a simple adjustment to eliminate the deficit, net benefits become net burdens in the neighbourhood of an income of

Chart 4-1

EFFECTIVE NET FISCAL INCIDENCE
USING THE "BROAD INCOME" BASE FOR DIFFERENT LEVELS OF GOVERNMENT



Source : Table 4-2

$5,800. When various margins of error are assumed to be associated with the basic pattern, the income range within which the cross-over occurs could extend from $4,500 to $6,900. 13/ But this income range itself depends upon the particular margin of error, and our assumed method of eliminating the "deficit". However, one cannot plead complete ignorance; consequently, in the absence of any other contradictory evidence, we conclude that positive redistribution of income becomes negative within the income range $4,500 — $7,000.

The patterns of net fiscal incidence for both the federal and the provincial and municipal levels of government follow the same general shape, and give rise to the same conclusions as just mentioned. There is, however, some difference in degree. The federal pattern of net fiscal incidence is more sharply regressive or "favourable to the lower income brackets" than the provincial and municipal pattern. This is explained by the concentration of social welfare public expenditures on the federal level.

Before proceeding to draw any major conclusions, it may be advisable to present the empirical results when an adjustment is applied to the net fiscal pattern to attempt to "eliminate" the public sector deficit. We mentioned previously that any such exercise was beset with difficulties that would render the results less than useful. We do not claim that these results are ideal, but we do think it necessary to provide an approximate adjustment to eliminate the deficit, if only to give the reader some idea of how our standard case might be altered by such an adjustment.

The "elimination" of the deficit is depicted in Chart 4.2. The methodology was to assume that the extra taxes necessary to eliminate the public sector deficit could be distributed similar to the total

tax burden. The inclusion of these extra tax payments eliminates the overall deficit and effects the general pattern of net fiscal incidence set forth in Chart 4.2. The overall general shape and direction of the net pattern is similar to our standard case, set forth in Chart 4.1. The cross-over point, where net benefits become net burdens, appears to be in the neighbourhood of an income of $6,000. In other words, the cross-over point is similar to our deduced cross-over point in the standard case. This situation is presented, neither as confirmation nor refutation of our earlier comments; rather, it is just another way of examining the cross-over point in light of the difficulties presented by the existence of an imbalance in the public sector.

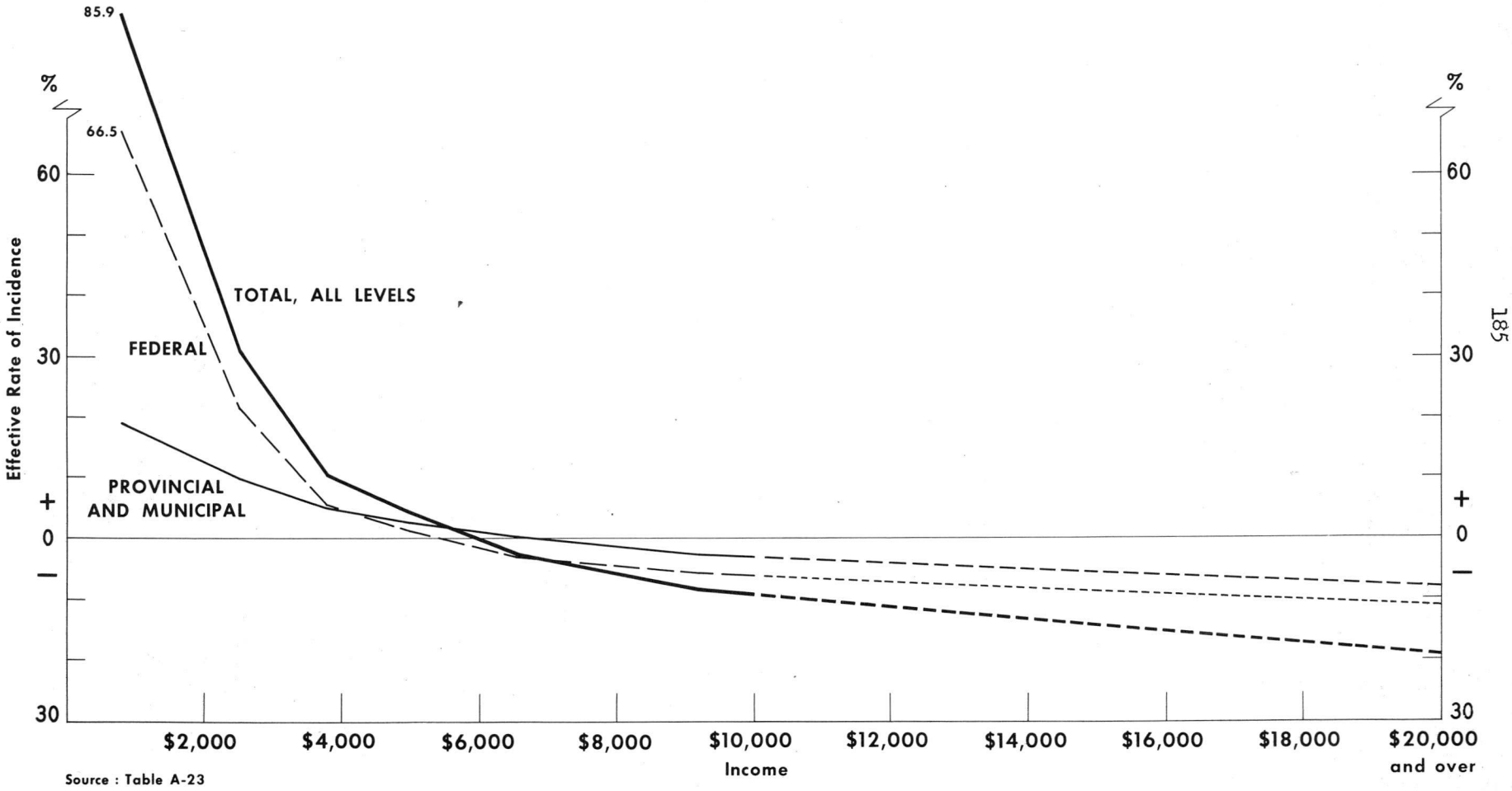
THE EMPIRICAL RESULTS: FOR THE "GENERAL" EXPENDITURE ADJUSTMENT

Having examined the empirical results for the standard case, where the benefits from "general" expenditures are assumed to be distributed proportional to income, it remains only to consider to what extent this assumption significantly affects the general pattern of net fiscal incidence. In other words, would the use of alternate assumptions A—by families, C—by capital income, or D—by disposable income, alter any of our previous conclusions?

Table 4.3 sets forth the patterns of redistribution for the standard assumption and the alternative three assumptions that were used and discussed fully in Chapter 3. It is clear that the general shape of schedules A and D are similar to the standard case. There is positive income redistribution over the lower income brackets and negative income redistribution over the upper income brackets. The effective rates are different, but there is no change in the relative position of the different

Chart 4-2

EFFECTIVE NET FISCAL INCIDENCE WITH A HYPOTHETICAL ELIMINATION OF THE PUBLIC SECTOR DEFICIT USING THE "BROAD INCOME" BASE



Source : Table A-23

income brackets. The difference in cross-over points can be expected to fall well within any reasonable confidence limits associated with the estimates.

TABLE 4.3

NET FISCAL INCIDENCE FOR ALL FOUR "GENERAL" EXPENDITURE ASSUMPTIONS: FOR ALL LEVELS OF GOVERNMENT, 1961 */

Family Money Income Class	Alternative Assumption A	B (Standard Case)	C	D
		Percentages		
Under $2,000	187.5	102.8	110.3	97.6
$2,000 - $ 2,999	54.3	39.9	36.4	40.2
3,000 - 3,999	24.4	19.1	11.9	19.7
4,000 - 4,999	12.3	12.3	4.2	13.2
5,000 - 6,999	3.0	5.9	-2.9	6.4
7,000 - 9,999	- 6.1	0.0	-8.3	0.1
10,000 and over	-19.6	-9.2	-3.4	-10.0
TOTAL	9.1	9.1	4.3 **/	9.1

Source: Table A-21.

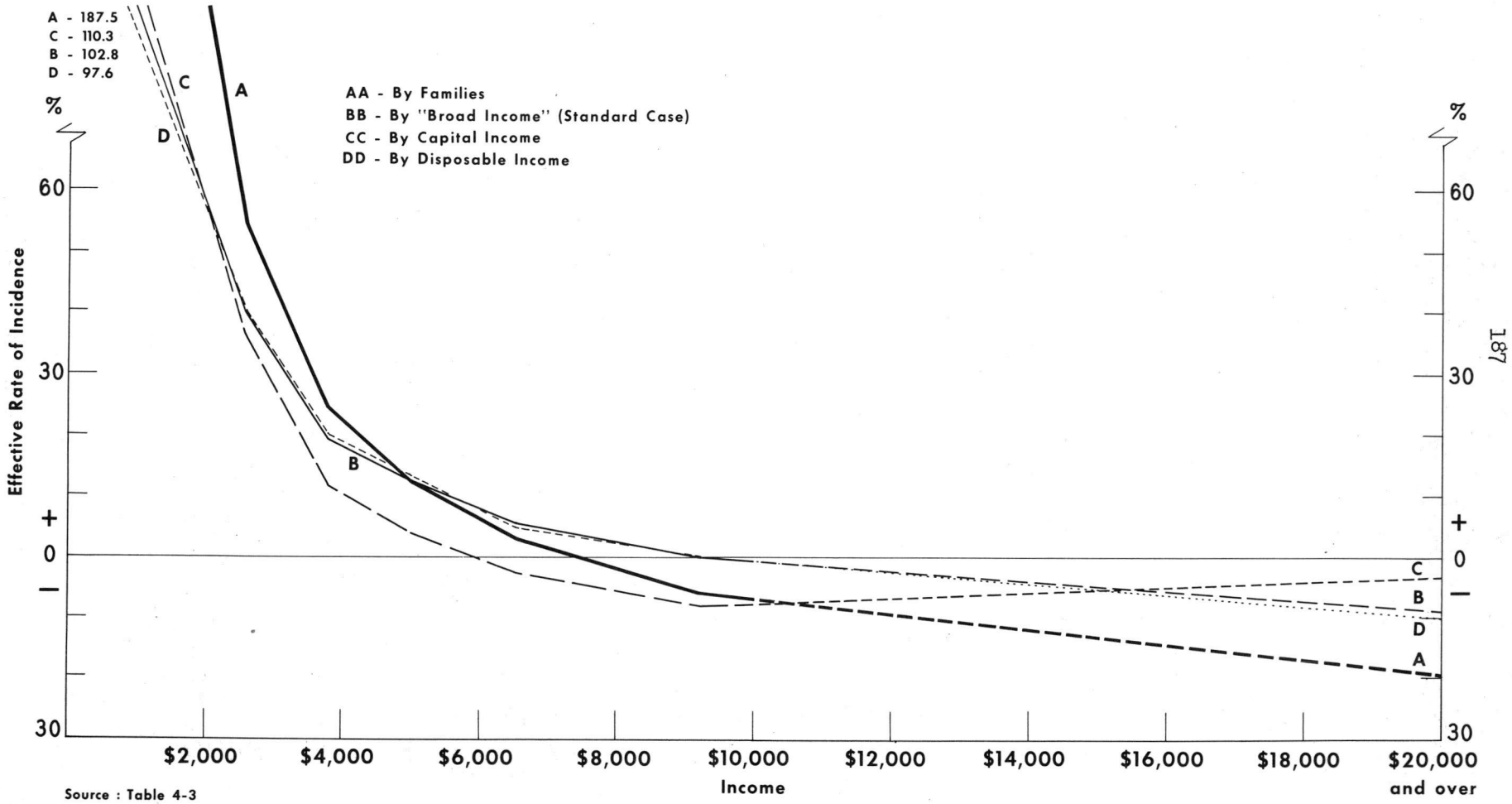
*/ Using the "broad income" base.

**/ The overall deficit is smaller in case C than elsewhere, because when the benefits from "general" expenditures are distributed, proportional to capital income, that portion accruing to foreign-owned capital must be excluded from the analysis as it is a benefit accruing to foreigners.

For Assumption C, the general shape of the curve is similar to the standard case over the lower income brackets. The difference over the upper income brackets is explained by the fact that Assumption C

Chart 4-3

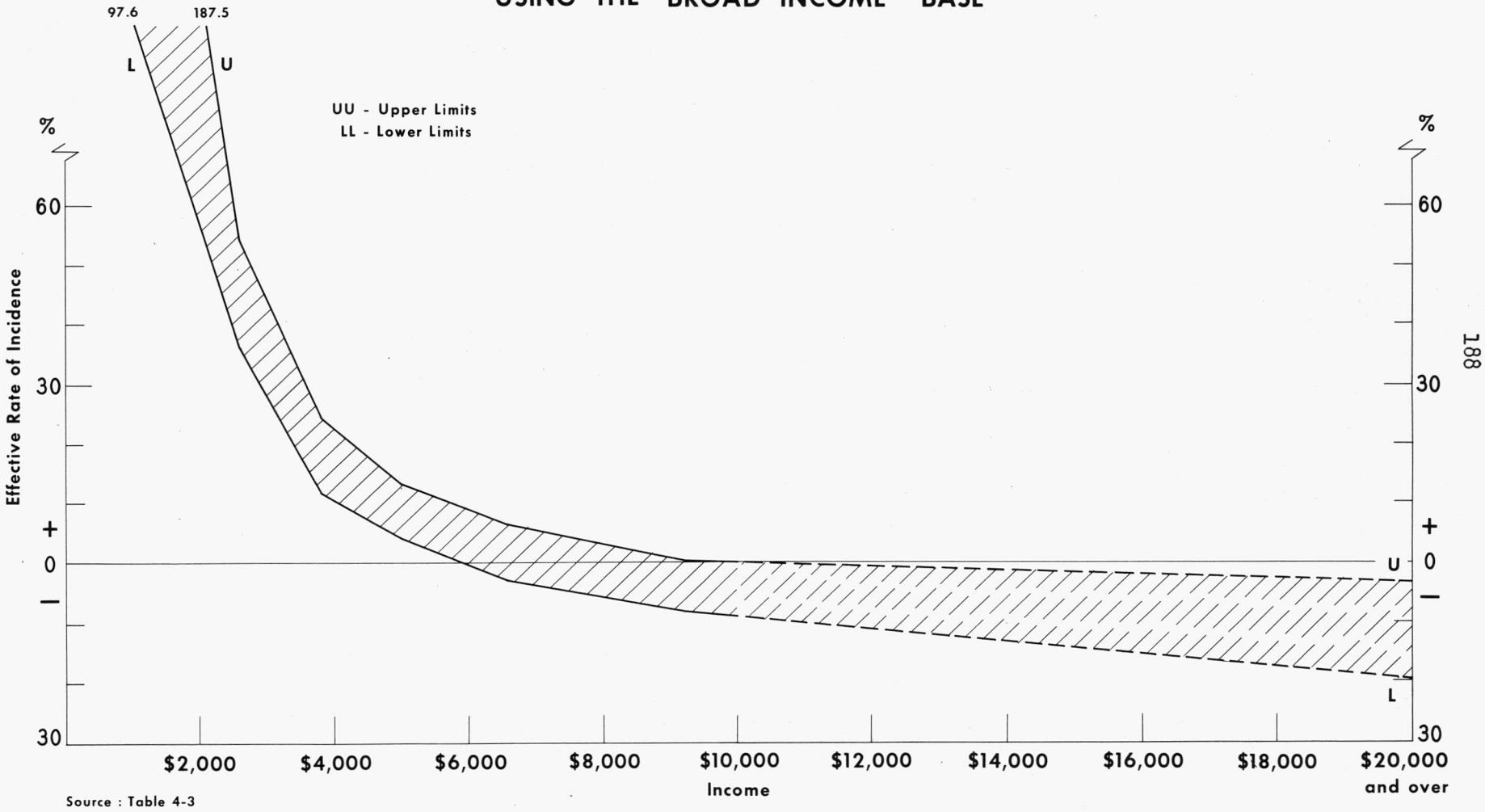
EFFECTIVE NET FISCAL INCIDENCE FOR "GENERAL" EXPENDITURE ADJUSTMENT USING THE "BROAD INCOME" BASE



Source : Table 4-3

Chart 4-4

EFFECTIVE NET FISCAL INCIDENCE WITHIN LIMITS OF THE ALTERNATIVE ASSUMPTIONS FOR "GENERAL" EXPENDITURES USING THE "BROAD INCOME" BASE



Source : Table 4-3

distributed "general" expenditures more progressively, and this reduces the net burden over the highest income brackets; in effect, the income range $5,000—$9,000 bears relatively more of a net burden under this assumption than under the other alternate assumptions. However, Charts 4.3 and 4.4 demonstrate that, given the possible margin or error associated with all schedules, the evidence supports the same general conclusions: there is positive income redistribution over the lower income ranges and negative income redistribution over the upper income brackets.

CONCLUSIONS

This chapter has attempted to combine the results of Chapters 2 and 3 in order to estimate the net redistributive impact of the public sector. Given certain assumptions as to the incidence of various taxes and public expenditures, these taxes and public expenditures were allocated to income classes. The tax payments, by income class, were subtracted from the public expenditures, by income class, and the resultant net fiscal amount was expressed as a percentage of the distribution of several income bases. The pattern of net fiscal incidence that results, while subject to several reservations on our part, seems quite clear: the public sector effects positive income redistribution—by income class—over the lower income ranges, and negative income redistribution over the upper income classes. Positive income redistribution becomes negative within an income range of $4,500—$7,000.

REFERENCES

1/ It is not strictly accurate to claim that the entire public sector is being examined. It is noted below that some revenue sources and expenditure outlays are excluded from the examined public sector; these omissions are, however, relatively minor.

2/ See Table 4.1.

3/ Specifically the transactions of social insurance and government pension funds, such as, the unemployment insurance fund, workmen's compensation funds, and public service pension funds, are included.

4/ In other words, each "effective rate" on the graph would be reduced by 9.1%, the rate of the overall deficit.

5/ The source of funds to cover the deficit need not concern us here; suffice it to mention that the government would have recourse to the conventional methods of financing a deficit in the public sector.

6/ In a situation where the benefits received by non-residents are independent of dividend flows to non-residents; this would seem to suggest, however, that non-residents should have some voice in the (voting) mechanism which matches preferences with those goods to be provided by the public sector. In a situation where such benefits are dependent on dividend flows that occasion the withholding tax, W, some matching will occur through the amount of capital that non-residents invest in the economy in question.

7/ The increase in spending power is valued at W—those public expenditures that are financed by the proceeds of the withholding tax.

8/ For a critical view of this point, see: A.R. Prest, "Statistical Calculations of Tax Burdens," Economica, Volume 22, 1955, No. 87 (New Series), pp. 234-245.

9/ Musgrave 1961, p. 9.

10/ In other words, the margin of error (for any particular family) surrounding the lower income bracket "effective expenditure rates" may be quite considerable.

11/ 1959 Survey of Consumer Finances, p. 64; and Goffman 1962, p. 23.

12/ Table A-24 and Charts A-1, A-2, and A-3 demonstrate the insensitivity of our schedules to even considerable margins of errors. The difficulties outlined in this chapter suggest that there may be a higher margin of error associated with the expenditure schedule than with the tax schedule. Consequently, Case I in Table A-24 sets forth the limits within which the "true" pattern of tax, expenditure and net fiscal incidence could be expected to fall if errors of 10% and 20% respectively were associated with the tax and expenditure patterns. Case II employs maximum errors of 20% and 30% for the tax and expenditure patterns.

In both cases, the bracketed values do not alter the general shape of the curves. In other words, even when allowing for a substantial margin of error the general shape (regressive, progressive or proportional) of the curves remains intact. The general conclusions based on our empirical estimates, therefore, can certainly withstand the possibility of the existence of errors with which we were not able to cope in the context of the investigation.

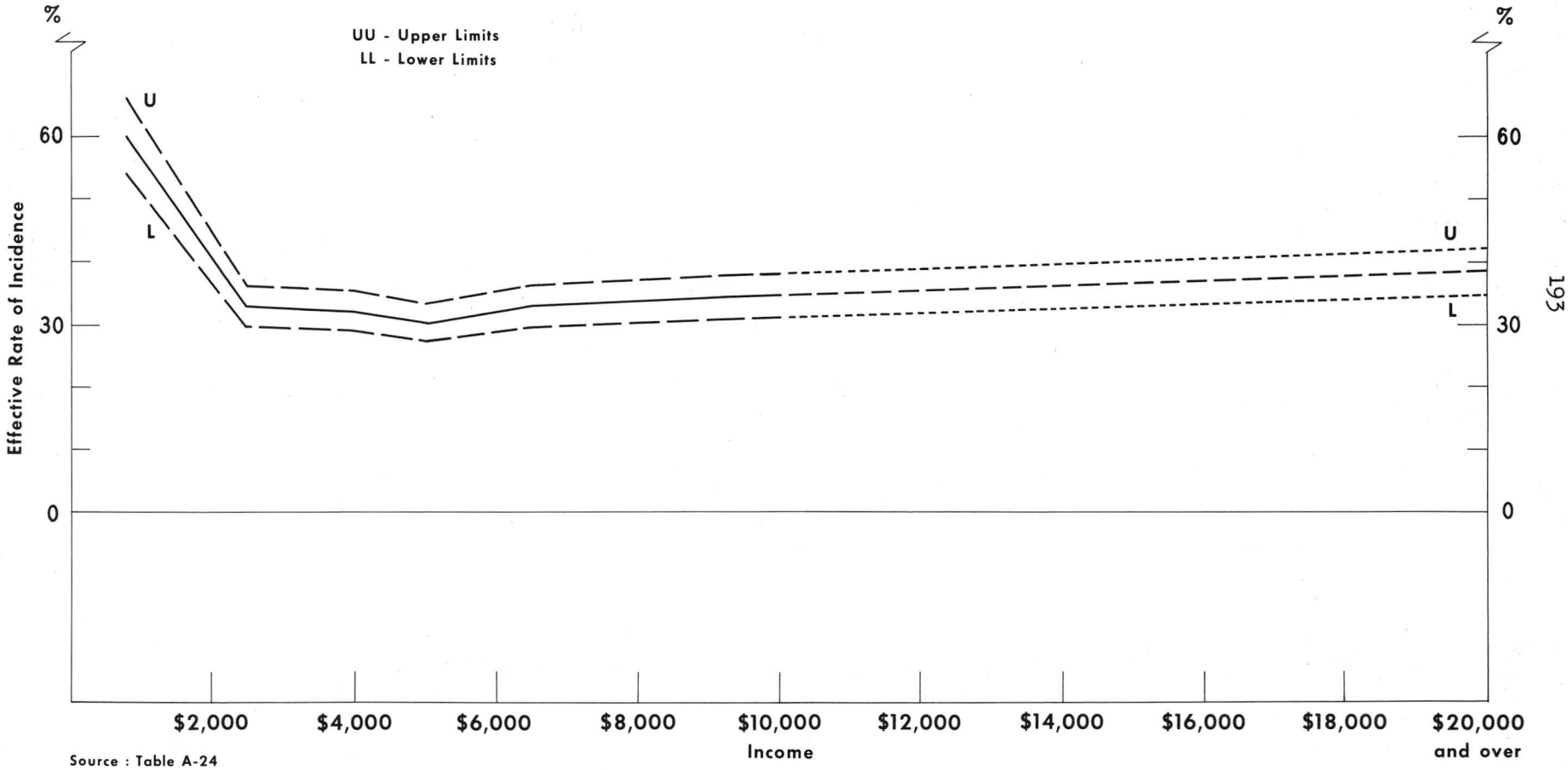
13/ See Table A-24 and Charts A-1 through A-4, where several assumed confidence limits are estimated for the empirical results of this investigation. While even large confidence limits do not alter the general overall pattern of any effective rates, they do make it more difficult to determine the cross-over point with more precision than alluded to previously.

"Alea jacta est."

Caesar

Chart A-1

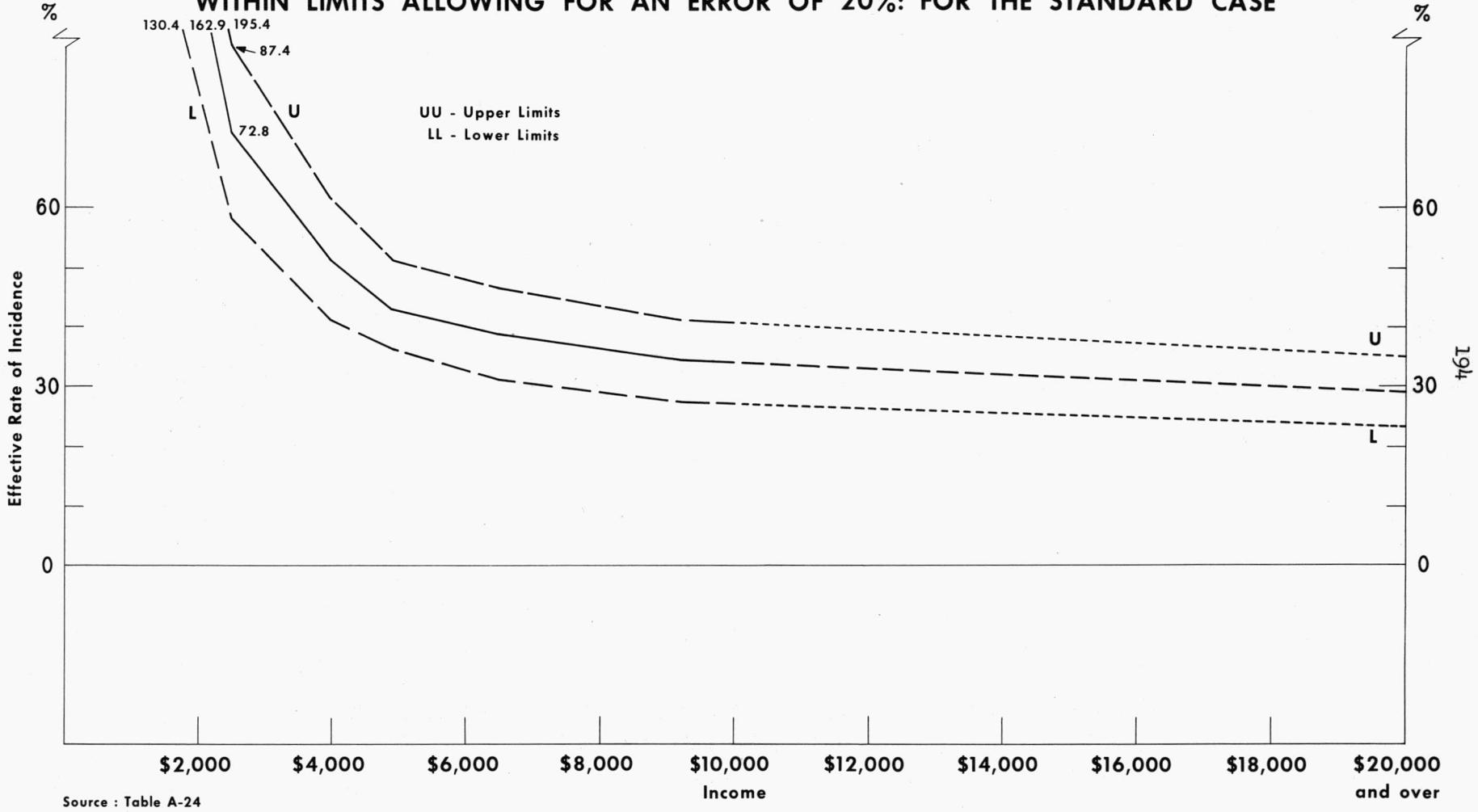
TOTAL TAX INCIDENCE
WITHIN LIMITS ALLOWING FOR AN ERROR OF 10%: FOR THE STANDARD CASE



Source : Table A-24

Chart A-2

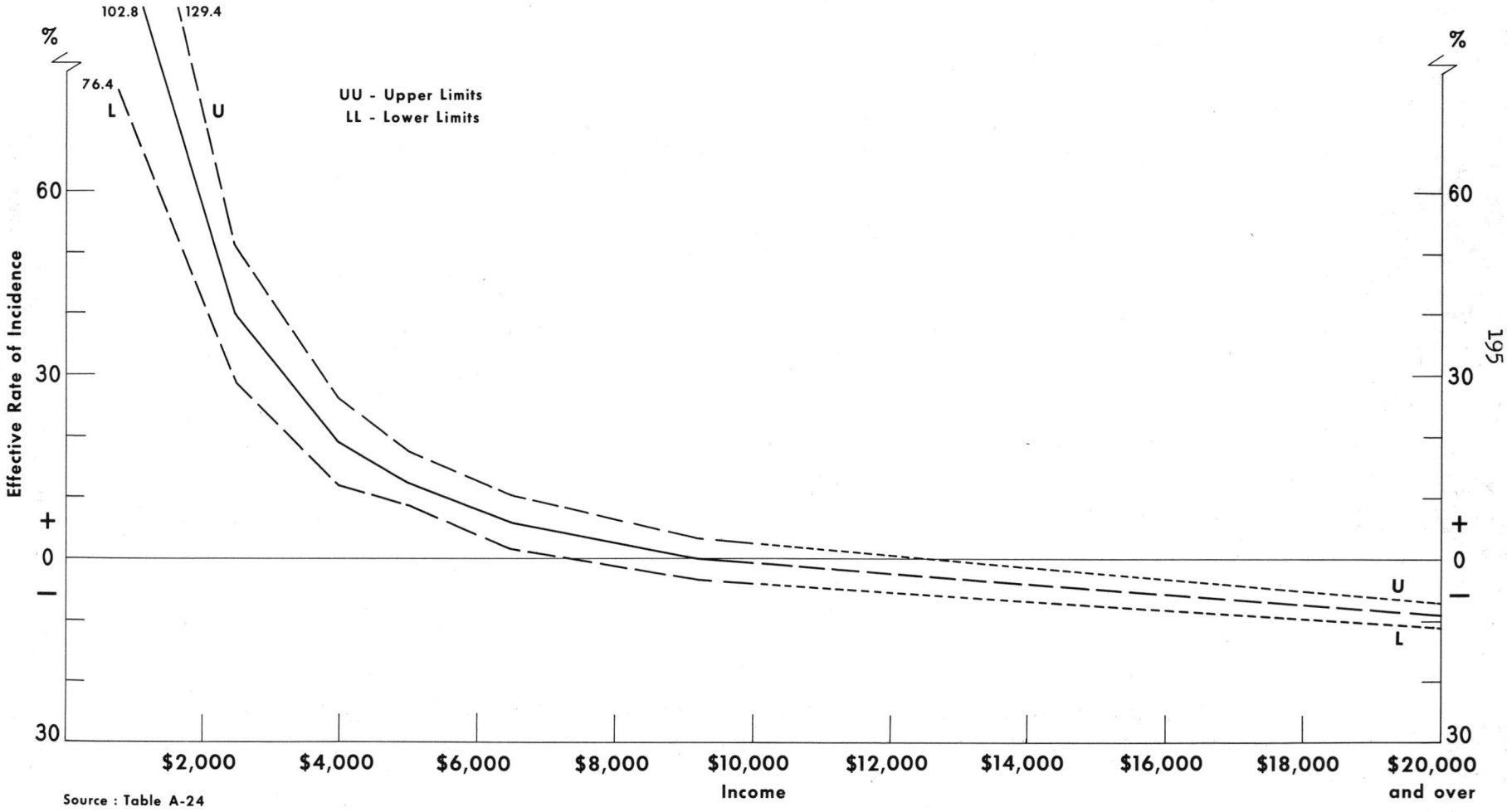
TOTAL EXPENDITURE INCIDENCE WITHIN LIMITS ALLOWING FOR AN ERROR OF 20%: FOR THE STANDARD CASE



Source : Table A-24

Chart A-3

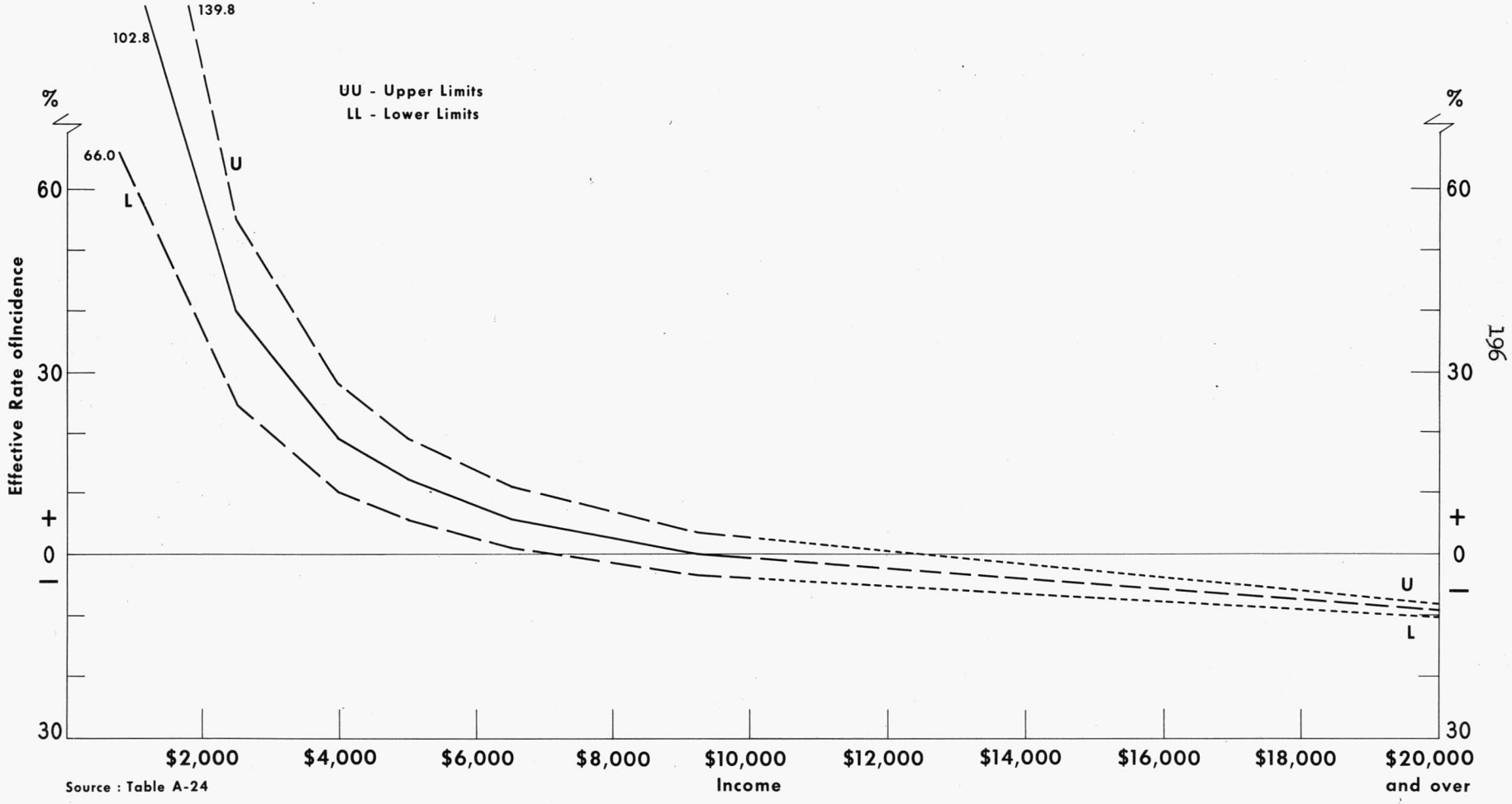
NET FISCAL INCIDENCE WITHIN LIMITS ALLOWING FOR A 10% TAX ERROR AND A 20% EXPENDITURE ERROR: FOR THE STANDARD CASE



Source : Table A-24

Chart A-4

NET FISCAL INCIDENCE WITHIN LIMITS ALLOWING FOR A 20% TAX ERROR AND A 30% EXPENDITURE ERROR: FOR THE STANDARD CASE



Source : Table A-24

TABLE A-1

DISTRIBUTIVE SERIES, 1961

Line	Series	Family Money Income Class: Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and over	Total
		Percentages							
1.	Wages and Salaries	2.2	5.1	10.0	15.4	30.5	23.4	13.4	100
2.	"Covered" Wages and Salaries	7.4	14.6	26.9	34.5	16.5	0.0	0.0	100
3.	Net Unincorporated Business Income	2.1	6.5	9.3	10.0	18.1	16.3	37.7	100
4.	Investment Income */	7.2	6.9	7.2	9.4	15.2	12.7	41.4	100
5.	Family Allowances	6.8	11.0	14.6	18.4	29.4	14.3	5.5	100
6.	Old Age Security Fund Payments	50.0	14.2	8.2	6.8	9.7	7.5	3.6	100
7.	Other Transfer Payments **/	27.1	22.3	13.1	11.8	14.2	8.7	2.8	100
8.	Pensions and Annuities	16.6	15.8	16.2	8.8	16.3	15.9	10.4	100
9.	Total Family Money Income	4.5	6.2	10.1	14.3	27.6	21.3	16.0	100
10.	Number of Families and Unattached Individuals	20.6	11.6	13.4	14.9	22.0	12.0	5.3	100
11.	Number of Farm Operators f/	41.7	19.0	13.6	9.0	9.5	4.4	2.8	100
12.	Farm Operator Total Family Income f/	5.9	16.5	16.6	14.3	19.4	12.4	14.9	100
13.	Farm Operator Family Income Solely from Farm Operations f/	1.8	16.4	17.0	14.7	20.1	13.3	16.8	100
14.	Dividends Received	4.2	5.0	4.7	4.7	8.4	11.0	62.0	100
15.	Military Pay and Allowances	0.0	6.0	4.9	29.0	40.4	14.5	5.2	100
16.	Liquid Assets	11.3	9.5	8.3	10.0	20.2	15.9	24.8	100
17.	All Deposits	11.4	9.7	8.4	11.2	22.6	17.7	18.9	100
18.	Savings Deposits	12.7	10.1	8.8	11.7	20.5	17.2	19.0	100
19.	All Bond Holdings	11.2	9.1	8.1	8.2	16.6	13.1	33.7	100
20.	Canada Savings Bonds	12.9	10.1	10.1	9.7	16.5	15.4	25.3	100
21.	Insurance Premiums Paid	2.6	5.0	9.7	13.2	26.4	19.6	23.6	100
22.	Estimated Market Value of Owner-occupied Homes	7.8	6.9	9.7	14.7	25.8	18.5	16.5	100
23.	Estimated Net Rental Value of Owner-occupied Homes	9.5	8.0	11.3	15.6	24.8	17.5	13.3	100
24.	Individual Income Tax	.5	1.6	4.7	9.3	28.2	26.4	29.4	100
25.	Rent Payments	11.4	10.0	14.5	19.3	26.0	15.2	3.7	100
26.	Net Rental Income	13.7	14.3	9.7	8.0	13.1	12.6	28.6	100
27.	Estimated Value of Farm Land and Agricultural Buildings f/	31.7	16.1	12.5	10.8	13.5	8.2	7.2	100
28.	Estimated Value of Farm Operator Homes f/	33.5	17.7	13.2	11.5	21.9	6.4	4.8	100
29.	Factor Incomes, 1961	2.6	5.7	9.7	14.5	27.5	21.1	18.9	100
30.	Hospital Insurance Premiums	16.5	11.2	13.6	15.6	23.9	13.4	5.8	100
31.	Automobile Purchases	0.7	1.8	6.1	13.3	30.6	28.7	18.8	100
32.	Automobile Operating Expenditures	1.5	3.5	8.3	14.3	32.6	23.8	16.0	100
33.	Non-farm Children under Sixteen Years	7.1	10.2	15.2	18.6	29.4	14.1	5.5	100
34.	Farm Children under Sixteen Years f/	31.0	20.9	17.3	10.6	11.0	5.1	3.1	100
35.	All Children under Sixteen Years	9.5	11.2	15.4	17.8	27.6	13.2	5.3	100
36.	Estimated Distribution of University Students	4.9	6.0	8.7	12.9	24.8	17.9	24.8	100
37.	Value of All Owned Property	8.6	7.3	9.8	14.7	25.4	18.1	16.1	100
38.	Expenditures on Transported Products	7.4	7.0	11.1	13.9	27.2	20.9	12.5	100
39.	Expenditures on "Other" Transportation	7.5	6.8	10.2	10.8	23.0	23.8	17.9	100
40.	All Families and Unattached Individuals Urban and Rural	22.0	12.1	13.5	14.5	21.2	11.6	5.1	100
41.	Distribution of Hospital Care Benefits	15.2	11.6	14.5	16.3	24.7	12.5	5.2	100
42.	Weighted Average of Owner-occupied and Renter-occupied Housing Units	16.8	11.1	13.4	15.6	23.8	13.4	5.9	100
43.	Estimated Distribution of Veterans	11.5	10.3	12.0	15.4	24.4	17.5	8.9	100
44.	"Broad" Income	3.1	6.0	9.8	14.4	26.8	20.5	19.4	100
45.	Disposable Income	1.9	6.1	10.2	15.3	27.6	20.6	18.3	100

Note: Details may not add to totals due to rounding.

*/ Includes: bond interest, dividends, bank interest, mortgage interest, net rental income and estate income.

**/ Includes: veterans' pensions, unemployment benefits, workmen's compensation, direct relief, pensions for the blind, mother's allowances, disabled persons' pensions, and miscellaneous transfer payments.

f/ Series for the farm sector only.

Source: See p. 228.

TABLE A-2

PERCENTAGE DISTRIBUTION OF CONSUMPTION EXPENDITURE BY INCOME GROUPS, ALL FAMILIES AND UNATTACHED INDIVIDUALS, CITIES OF 15,000 AND OVER AND FARM OPERATORS, 1961

Line	Item	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
1.	Food	8.9	8.0	12.2	14.6	26.7	19.2	10.4	100
2.	Housing Operation	9.7	7.8	11.2	14.5	26.8	18.8	11.2	100
3.	Furnishings	5.7	6.5	11.7	13.5	27.7	21.4	13.5	100
4.	Clothing	6.2	6.5	10.3	12.6	26.6	23.4	14.4	100
5.	Transportation	3.6	4.5	8.3	13.1	29.2	24.8	16.5	100
6.	Medical Care	8.3	8.1	12.3	13.5	27.8	18.8	11.2	100
7.	Personal Care	6.4	6.4	11.1	13.9	28.6	20.8	12.8	100
8.	Reading, Recreation and Education	5.4	5.3	9.8	11.8	26.1	24.0	17.6	100
9.	Smoking and Alcohol	5.6	6.8	11.2	14.8	28.4	20.7	12.5	100
10.	Other	7.9	5.4	9.9	12.3	30.0	20.7	13.8	100
11.	Total Consumption	7.5	7.0	11.0	13.9	27.3	20.7	12.6	100
12.	Taxable Consumption: Manufacturers' Sale Tax	6.5	6.5	10.5	13.8	27.6	21.6	13.5	100
13.	Taxable Consumption: Provincial Retail Sales Taxes	7.3	6.7	10.5	13.7	27.5	21.2	13.1	100

Note: Details may not add to totals due to rounding.

TABLE A-3(a)

TOTAL TAX PAYMENTS, 1961 */

Line	Revenue Source	Federal (1)	Provincial (2)	Local (3)	Provincial and Local ((2) + (3)) (4)	All Levels ((1) + (4)) (5)
				Millions		
1.	Corporation Income Tax 1/	$1,232	$ 378	$ -	$ 378	$1,610
2.	Individual Income Tax 1/	1,850	287	-	287	2,137
3.	Succession Duties 1/	71	80	-	80	151
4.	General Sales Tax	1,045	355	-	355	1,400
	Selective Excise Taxes					
5.	(i) Liquor	206	246 2/	-	246	452
6.	(ii) Tobacco	367	27	-	27	394
7.	(iii) Automobiles & Fuel Oil & Gasoline	25	449	-	449	474
8.	(iv) Other Commodities	25	34	103 6/	137	162
9.	Import Duties	535	-	-	-	535
10.	Hospital Insurance Premiums	-	133 3/	-	133	133
11.	Real Property Tax	-	8	1,391	1,399	1,399
	Other taxes:					
12.	(i) Motor Vehicle Licences	-	182	-	182	182
13.	(ii) Natural Resource Revenues 4/	-	282	-	282	282
14.	(iii) Premium Income of Life Insurance Cos.	-	34	-	34	34
15.	(iv) Business Taxes	-	-	45	45	45
16.	Social Security Taxes 5/	394	193	13	206	600
17.	Total	$5,750	$2,688	$1,552	$4,240	$9,990

Source and explanation of footnotes: See p. 235.

*/ Fiscal 1961-62.

TABLE A-3(b)

PROVINCIAL AND LOCAL TAXES, BY PROVINCE, 1961 */

Line	Tax	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
						Millions						
1.	Corporation Income Tax	$ 4	$ 1	$ 6	$ 5	$ 138	$ 152	$ 13	$ 9	$ 21	$ 29	$ 378
2.	Individual Income Tax	2	(1)	5	4	85	122	12	9	18	29	287
3.	Succession Duties	(1)	(1)	1	1	25	40	2	1	2	6	80
4.	General Sales Tax	14	2	16	9	116	82	-	22	-	93	355
5.	Selective Excise Taxes, Total	12	4	32	30	298	269	38	42	57	76	859
6.	(i) Liquor	4	1	12	10	54	84	15	14	22	30	246
7.	(ii) Tobacco	(2)	(1)	(2)	2	24	-	-	(2)	-	(2)	27
8.	(iii) Motor and Fuel Oil	7	3	19	15	108	174	22	26	34	42	449
9.	(iv) Other Commodities	1	(1)	1	3	112	11	1	2	1	4	137
10.	Hospital Insurance Premiums	(1)	1	(1)	(1)	2	97	20	12	(1)	(1)	133
11.	Property Tax	3	2	36	26	277	644	72	83	117	139	1,399
12.	Other Taxes, Total	5	1	10	11	110	125	19	28	147	86	543
13.	(i) Motor Vehicle Licences	3	1	6	5	43	73	8	8	14	21	182
14.	(ii) Natural Resource Revenues	1	-	1	3	33	38	4	19	124	58	282
15.	(iii) Premium Income of Life Insurance Companies	(1)	(1)	1	1	10	14	1	1	2	3	34
16.	(iv) Business Tax	1	(1)	2	2	24	(3)	6	-	7	4	45
17.	Total Taxes	$40	$11	$106	$86	$1,051	$1,531	$176	$206	$362	$458	$4,034

Note: details may not add to totals due to rounding.
Footnotes: See p. 237.
*/ Fiscal 1961-62.

TABLE A-4

ESTIMATION OF THE INCOME CONCEPTS, 1961

Line	Item	Family Money Income Class: Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Millions							
1.	FAMILY MONEY INCOME, Total	$1,304	$1,825	$2,665	$3,801	$7,086	$5,342	$4,378	$26,401
2.	Wages and Salaries	402	932	1,828	2,815	5,576	4,278	2,450	18,281
3.	Military Pay and Allowances	0	33	27	160	222	79	29	550
4.	Net Farm Money Income	14	126	130	113	155	102	129	769
5.	Net Non-farm, Unincorporated Business Income	48	149	213	229	414	373	863	2,289
6.	Investment Income	137	131	137	179	289	242	788	1,903
7.	Pension Income	26	25	26	14	26	25	16	158
8.	Transfer Payments	677	429	304	291	404	244	103	2,453
9.	NON-MONEY ADDITIONS, Total	154	117	150	186	327	235	252	1,421
10.	Imputed Interest	18	15	13	16	33	26	40	161
11.	Imputed Rents	45	38	54	74	118	83	64	476
12.	Investment Income of Life Insurance Companies	16	30	59	80	159	118	142	604
13.	Food and Fuel Grown and Consumed on the Farm	75	34	24	16	17	8	6	180
14.	ADJUSTMENTS TO INCOME, Total	65	98	134	166	211	183	685	1,542
15.	Retained Earnings	22	26	24	24	43	57	318	514
16.	Unshifted Portion of the Corporate Income Tax	22	27	25	25	45	58	329	531
17.	Backward Shifted Portion of Social Security Contributions	21	45	85	117	123	68	38	497
18.	BASIC INCOME, Total	1,523	2,040	2,949	4,153	7,624	5,760	5,315	29,364
19.	Less Transfer Payments	677	429	304	291	404	244	103	2,452
20.	"BROAD INCOME" CONCEPT, Y	846	1,611	2,645	3,862	7,220	5,516	5,212	26,912
21.	Less Total Taxes, T	508	530	853	1,177	2,369	1,888	2,003	9,328
22.	Plus Government Expenditures, B and Transfer Payments, R	1,378	1,173	1,359	1,651	2,799	1,889	1,523	11,771
23.	"ADJUSTED BROAD INCOME" CONCEPT (Y + B + R - T)	1,716	2,254	3,151	4,336	7,650	5,517	4,732	29,355
24.	Number of Families, Farm, Urban and Military (Thousands)	1,134	633	697	771	1,117	602	263	5,217
	AVERAGE PER FAMILY INCOME								
25.	"Broad Income" (20 ÷ 24)	746	2,545	3,795	5,009	6,464	9,163	19,817	5,158
26.	"Adjusted Broad Income" (23 ÷ 24)	1,513	3,561	4,521	5,624	6,849	9,164	17,799	5,627

Note: Details may not add to totals due to rounding. The various income concepts are explained fully in the notes to this Table. See p. 237.

TABLE A-5

THE DISTRIBUTION OF TAX PAYMENTS, 1961

Line	Tax	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Millions							
	FEDERAL TAXES								
1.	Individual Income Tax	$ 9	$ 30	$ 87	$172	$522	$487	$543	$1,850
2.	Corporation Income Tax	55	55	75	89	172	149	316	911
3.	Sales Tax	68	68	110	144	288	226	141	1,045
4.	Selective Excises	36	42	69	90	177	130	77	621
5.	Import Duties	40	37	59	74	146	111	67	535
6.	Estate Duties	-	-	-	-	-	-	71	71
7.	Social Security Contributions	23	41	76	101	88	41	24	394
8.	Total Federal Taxes	$231	$273	$476	$670	$1,393	$1,144	$1,239	$5,427
	PROVINCIAL AND LOCAL TAXES								
9.	Individual Income Tax	1	5	13	27	81	76	84	287
10.	Corporation Income Tax	17	17	23	27	53	46	97	280
11.	Sales and Excise Taxes	69	73	122	166	337	250	156	1,174
12.	Succession Duties	-	-	-	-	-	-	80	80
13.	Hospital Insurance Premiums	22	15	18	21	31	18	8	133
14.	Property Tax	138	110	142	185	308	222	196	1,300
15.	Other Taxes	23	26	38	50	104	85	116	442
16.	Social Security Contributions	7	11	21	31	62	47	27	206
17.	Total Provincial and Local Taxes	$277	$257	$377	$507	$976	$744	$764	$3,902
18.	TOTAL TAXES, ALL LEVELS	$508	$530	$853	$1,177	$2,369	$1,888	$2,003	$9,329

Note: Details may not add to totals, due to rounding.

TABLE A-6

EFFECTIVE TAX RATES FOR THE TOTAL TAX STRUCTURE USING THE "BROAD INCOME" CONCEPT, 1961

Line	Tax Source	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
1.	FEDERAL TAXES, TOTAL	27.3	16.9	18.0	17.3	19.3	20.7	23.8	20.2
2.	Individual Income Tax	1.1	1.9	3.3	4.5	7.2	8.8	10.4	6.9
3.	Corporation Income Tax	6.5	3.4	2.8	2.3	2.4	2.7	6.1	3.4
4.	Sales Tax	8.0	4.2	4.2	3.7	4.0	4.1	2.7	3.9
5.	Selective Excises	4.3	2.6	2.6	2.3	2.5	2.4	1.5	2.3
6.	Import Duties	4.7	2.3	2.2	1.9	2.0	2.0	1.3	2.0
7.	Estate Duties	-	-	-	-	-	-	1.4	.3
8.	Social Security Contributions	2.7	2.5	2.9	2.6	1.2	.7	.5	1.5
9.	PROVINCIAL AND LOCAL TAXES, TOTAL	32.7	16.0	14.2	13.1	13.5	13.5	14.6	14.5
10.	Individual Income Tax	.1	.3	.5	.7	1.1	1.4	1.6	1.1
11.	Corporation Income Tax	2.0	1.1	.9	.7	.7	.8	1.9	1.0
12.	Sales and Excises	8.2	4.5	4.6	4.3	4.7	4.5	3.0	4.4
13.	Succession Duties	-	-	-	-	-	-	1.5	.3
14.	Hospital Insurance Premiums	2.6	.9	.7	.5	.4	.3	.1	.5
15.	Property Tax	16.3	6.8	5.4	4.8	4.3	4.0	3.8	4.8
16.	Other Taxes	2.7	1.6	1.4	1.3	1.4	1.5	2.2	1.6
17.	Social Security Contributions	.8	.7	.8	.8	.9	.9	.5	.8
18.	TOTAL TAXES, ALL LEVELS	60.0	32.9	32.2	30.5	32.8	34.2	38.4	34.7

Note: Details may not add to totals due to rounding.

TABLE A-7

EFFECTIVE TAX RATES FOR THE TOTAL TAX STRUCTURE, FOR THE "ADJUSTED BROAD INCOME" BASE, 1961

Line	Tax Source	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000- and Over	Total
		Percentages							
1.	FEDERAL TAXES, TOTAL	13.5	12.1	15.1	15.4	18.2	20.7	26.2	18.5
2.	Individual Income Tax	0.5	1.3	2.8	4.0	6.8	8.8	11.5	6.3
3.	Corporation Income Tax	3.2	2.4	2.4	2.0	2.2	2.7	6.7	3.1
4.	Sales Tax	4.0	3.0	3.5	3.3	3.8	4.1	3.0	3.6
5.	Selective Excises	2.1	1.9	2.2	2.1	2.3	2.4	1.6	2.1
6.	Import Duties	2.3	1.6	1.9	1.7	1.9	2.0	1.4	1.8
7.	Estate Duties	-	-	-	-	-	-	1.5	0.2
8.	Social Security Contributions	1.3	1.8	2.4	2.3	1.1	0.7	0.5	1.3
9.	PROVINCIAL AND LOCAL TAXES, TOTAL	16.1	11.4	12.0	11.7	12.8	13.5	16.1	13.3
10.	Individual Income Tax	0.1	0.2	0.4	0.6	1.1	1.4	1.8	1.0
11.	Corporation Income Tax	1.0	0.7	0.7	0.6	0.7	0.8	2.0	0.9
12.	Sales and Excises	4.0	3.2	3.9	3.8	4.4	4.5	3.3	4.0
13.	Succession Duties	-	-	-	-	-	-	1.7	0.3
14.	Hospital Insurance Premiums	1.3	0.7	0.6	0.5	0.4	0.3	0.2	0.4
15.	Property Tax	8.0	4.9	4.5	4.3	4.0	4.0	4.1	4.4
16.	Other Taxes	1.3	1.1	1.2	1.1	1.4	1.5	2.4	1.5
17.	Social Security Contributions	0.4	0.5	0.7	0.7	0.8	0.8	0.6	0.7
18.	TOTAL TAXES, ALL LEVELS	29.6	23.5	27.1	27.1	31.0	34.2	42.3	31.8

Note: Details may not add to totals due to rounding.

TABLE A-8 (a)

TOTAL TAXES FOR VARIOUS ALTERNATIVE SHIFTING ASSUMPTIONS, 1961

Line	Item	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
					Millions				
	CORPORATION INCOME TAX ADJUSTMENT */								
1.	Assumption A	$481	$511	$805	$1,111	$2,233	$1,809	$2,250	$9,202
2.	Assumption B	499	524	836	1,155	2,324	1,863	2,084	9,286
3.	Assumption C	535	550	900	1,244	2,504	1,967	1,756	9,458
	SALES TAX ADJUSTMENT */								
4.	Assumption A	471	518	838	1,171	2,345	1,872	2,048	9,261
5.	Assumption B	439	509	821	1,166	2,318	1,857	2,085	9,198
6.	Assumption C	403	498	808	1,159	2,293	1,839	2,127	9,131
	PROPERTY TAX ADJUSTMENT */								
7.	Assumption A	513	539	842	1,153	2,340	1,883	2,055	9,329
8.	Assumption B	510	535	849	1,164	2,357	1,885	2,030	9,329

Note: Details may not add to totals due to rounding.

*/ Corporate income tax adjustment: A assumes zero shifting to consumers, B assumes one-third shifting, and C assumes complete shifting. Sales tax adjustment: A assumes one-third shifting backwards to factors, B assumes two-thirds backward shifting, and C assumes complete shifting to factors. Property tax adjustment: A assumes complete shifting of the portion of tax falling on renter-occupied housing units to the landlord, and B assumes half is shifted to the tenant, the remainder falling on the landlord.

TABLE A-8 (b)

INCOME BASES FOR VARIOUS ALTERNATIVE SHIFTING ASSUMPTIONS, 1961

Line	Item	Money Income Class: Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000- and Over	Total
					Millions				
	"Broad Income" CORPORATION INCOME TAX ADJUSTMENT */								
1.	Assumption A	$ 869	$1,637	$2,670	$3,887	$7,264	$5,575	$5,543	$27,445
2.	Assumption B	854	1,619	2,653	3,870	7,235	5,536	5,322	27,089
3.	Assumption C	824	1,584	2,620	3,837	7,175	5,458	4,883	26,381
	SALES TAX ADJUSTMENT */								
4.	Assumption A	888	1,704	2,803	4,099	7,668	5,860	5,520	28,541
5.	Assumption B	911	1,755	2,889	4,227	7,912	6,047	5,685	29,425
6.	Assumption C	933	1,805	2,973	4,354	8,152	6,231	5,853	30,303
	"Adjusted Broad Income" CORPORATION INCOME TAX ADJUSTMENT */								
7.	Assumption A	1,739	2,280	3,176	4,361	7,703	5,576	5,063	29,888
8.	Assumption B	1,724	2,262	3,159	4,344	7,674	5,537	4,832	29,532
9.	Assumption C	1,694	2,227	3,126	4,311	7,605	5,459	4,403	28,824
	SALES TAX ADJUSTMENT */								
10.	Assumption A	1,758	2,347	3,309	4,573	8,107	5,861	5,040	30,894
11.	Assumption B	1,781	2,398	3,395	4,701	8,351	6,048	5,205	31,888
12.	Assumption C	1,803	2,448	3,479	4,828	8,582	6,232	5,373	32,746

Note: Details may not add to totals due to rounding.

*/ : Corporate income tax adjustment: A assumes zero shifting to consumers, B assumes one-third shifting, and C assumes complete shifting. Sales tax adjustment: A assumes one-third shifting backwards to factors, B assumes two-thirds backward shifting, and C assumes complete shifting to factors.

TABLE A-9

EFFECTIVE TOTAL TAX INCIDENCE USING THE "BROAD INCOME" CONCEPT, FOR VARIOUS ALTERNATIVE SHIFTING ASSUMPTIONS, 1961

Line	Item	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
	CORPORATE INCOME TAX ADJUSTMENT */								
1.	Assumption A	55.4	31.2	30.1	28.6	30.7	32.4	40.6	33.5
2.	Assumption B	58.4	32.4	31.5	29.8	32.1	33.7	39.2	34.3
3.	Assumption C	64.9	34.7	34.4	32.4	34.9	36.0	36.0	35.9
	SALES TAX ADJUSTMENT */								
4.	Assumption A	53.0	30.4	29.9	28.6	30.6	31.9	37.1	32.6
5.	Assumption B	48.2	29.0	28.4	27.6	29.3	30.7	36.7	31.3
6.	Assumption C	43.2	27.5	27.2	26.6	28.1	29.5	36.3	30.1
	PROPERTY TAX ADJUSTMENT */								
7.	Assumption A	60.6	33.5	31.8	29.9	32.4	34.1	39.4	34.7
8.	Assumption B	60.3	33.2	32.1	30.1	32.6	34.2	38.9	34.7
9.	Standard Tax Schedule for a Hypothetical Individual Income Tax	59.9	32.2	31.2	29.0	30.3	31.3	46.9	34.7
10.	Standard Tax Schedule for an Income Concept Including a Hypothetical Capital Gains Component	58.5	32.4	32.0	30.3	32.6	33.9	36.2	34.0

*/ Corporate income tax adjustment: A assumes zero shifting to consumers, B assumes one-third shifting, and C assumes complete shifting. Sales tax adjustment: A assumes one-third shifting backwards to factors, B assumes two-thirds backward shifting, and C assumes complete shifting to factors. Property Tax Adjustment: A assumes complete shifting of the portion of tax falling on renter-occupied housing units to the landlord, and B assumes half is shifted to the tenant, the remainder falling on the landlord.

TABLE A-10

EFFECTIVE TOTAL TAX INCIDENCE USING THE "ADJUSTED BROAD INCOME" CONCEPT, FOR VARIOUS ALTERNATIVE SHIFTING ASSUMPTIONS, 1961

Line	Item	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
	CORPORATE INCOME TAX ADJUSTMENT */								
1.	Assumption A	27.7	22.4	25.3	25.5	29.0	32.4	44.4	30.8
2.	Assumption B	28.9	23.2	26.5	26.6	30.3	33.6	43.1	31.4
3.	Assumption C	31.6	24.7	28.8	28.8	32.9	36.0	39.9	32.8
	SALES TAX ADJUSTMENT */								
4.	Assumption A	26.8	22.1	25.3	25.6	28.9	31.9	40.6	30.0
5.	Assumption B	24.6	21.2	24.2	24.8	27.8	30.7	40.1	28.8
6.	Assumption C	22.4	20.3	23.2	24.0	26.7	29.5	39.6	27.9
	PROPERTY TAX ADJUSTMENT */								
7.	Assumption A	29.9	23.9	26.7	26.6	30.6	34.1	43.4	31.8
8.	Assumption B	29.7	23.7	26.9	26.8	30.8	34.2	42.9	31.8
9.	Standard Tax Schedule for a Hypothetical Individual Income Tax Series	29.5	23.0	26.2	25.8	28.6	31.3	51.6	31.8
10.	Standard Tax Schedule for an Income Concept Including a Hypothetical Capital Gains Component	29.2	23.2	26.9	27.0	30.8	33.9	39.7	31.2

*/ Corporate income tax adjustment: A assumes zero shifting to consumers, B assumes one-third shifting; and C assumes complete shifting. Sales tax adjustment: A assumes one-third shifting backwards to factors, B assumes two-thirds backward shifting, and C assumes complete shifting to factors, Property tax adjustment: A assumes complete shifting of the portion of tax falling on renter-occupied housing units to the landlord, and B assumes half is shifted to the tenant, the remainder falling on the landlord.

TABLE A-11(a)

TOTAL PUBLIC EXPENDITURES, 1961

Line	Item of Expenditure	Federal	Provincial	Municipal	Provincial and Municipal	Total All Levels
			Millions			
1.	Highway Expenditures	$ 89	$ 654	$ 319	$ 973	$ 1,062
2.	Other Transportation 1/	306	5	-	5	311
3.	Education Expenditure, Total	93	841	886	1,727	1,820
4.	a) Indian, Eskimo, Handicapped	38	61		61	
5.	b) Local Schools		580	886	1,466	
6.	c) Universities	55	200	-	200	
7.	Health and Sanitation, Total	366	601	245	846	1,212
8.	a) Public Health 2/	49	58	66	124	
9.	b) Hospital Care	317	543	-	543	
10.	c) Sanitation	-	-	179	179	
11.	Social Welfare & Veterans' Benefits, Total	2,266	413	51	464	2,730
12.	a) Family Allowances	524	-	-	-	
13.	b) OASF Benefit	656	65	-	65	
14.	c) Government Pensions	67	45	9	54	
15.	d) Other Transfers	1,019	303	42	345	
16.	i) Veterans	337	-	-	-	
17.	ii) Unemployment 3/	653	101	-	101	
18.	iii) Miscellaneous 4/	29	202	42	244	
19.	Agriculture Expenditure	295	77	-	77	372
20.	Interest Payments	653	78	106	184	837
21.	General Expenditures, Total	2,646	499	645	1,144	3,790
22.	a) Defence & Mutual Aid	1,649	-	-	-	
23.	b) General Government	287	135	149	284	
24.	c) Natural Resources & Primary Industries	110	124	-	124	
25.	d) Payment to Own Enterprise	171	5	20	25	
26.	e) Protection to Persons and Property	88	141	258	399	
27.	f) Others 5/	341	94	218	312	
28.	Total Expenditures 6/	$6,714	$3,168	$2,252	$5,420	$12,134

Source and Footnotes: See p. 247.

TABLE A - 11(b)

DETAILED BREAKDOWN OF PUBLIC EXPENDITURES ON SOCIAL WELFARE AND VETERANS, 1961

Line	Item	FEDERAL			PROVINCIAL AND LOCAL			ALL LEVELS		
		Transfer Payment	Goods and Service Expenditure	Total	Transfer Payment	Goods and Service Expenditure	Total	Transfer Payment	Goods and Service Expenditure	Total
		Millions								
1.	Family Allowances	$ 517	$ 7	$ 524	$ -	$ -	$ -	$ 517	$ 7	$ 524
2.	Old Age Security Payments	603	53	656	65	-	65	668	53	721
3.	Old Age Security Fund Benefits	603	53	656	-	-	-			
4.	Old Age Assistance Pensions 1/	-	-	-	65	-	65			
5.	Pensions to Government Employees 2/	67	-	67	54	-	54	121	-	121
6.	Other Transfers	760	259	1,019	236	109	345	996	368	1,364
7.	Veterans' Benefits	237	100	337	-	-	-	237	100	337
8.	Employment Service Benefits 3/	494	159	653	-	101	101	494	260	754
9.	Unemployment Insurance Payments	494	53	547	-	91	91			
10.	Employment Service Expenditures	-	106	106	-	10	10			
11.	Miscellaneous Transfers	29	-	29	236	8	244	265	8	273
12.	Workmen's Compensation 2/	-	-	-	94	-	94			
13.	Mother's Allowances and Child Welfare	-	-	-	73	8	81			
14.	Relief, and to Blind, etc.,	29	-	29	69	-	69			
15.	TOTAL EXPENDITURES	$1,947	$319	$2,266	$355	$109	$464	$2,302	$428	$2,730

Source: See p. 248.
Footnotes: 1/, 2/, 3/ see p. 249.
Note: Details may not add to totals due to rounding.

TABLE A - 11(c)

NET GENERAL PROVINCIAL AND LOCAL EXPENDITURES, 1961 */

Expenditure	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon & N.W.T.	Total
						Millions						
1. Highway Expenditures	$ 18	$ 8	$ 32	$ 34	$ 192	$ 387	$ 51	$ 51	$ 104	$ 95	$ 1/	$ 973
2. Other Transportation	1/	1/	1	1/	1	1/	1/	1	1/	2	1/	5
3. Education Expenditure	21	8	52	37	489	615	102	94	148	158 3/	2	1,727
4. Health and Sanitation	17	3	26	20	159	367	39	53	74	86	1	846
5. Social Welfare and Veterans' Benefits	11	1	9	7	123	78	14	14	25	35	1/	317
6. Agriculture Expenditure	1	1	2	2	37	9	6	8	7	4	-	77
7. Interest Payments	6	2	13	10	49	89	5	3	- 7	16 4/	1/	184
8. General Expenditures	14	2	27	22	329 5/	383	49	52	110	144	-	1,144 2/
9. TOTAL EXPENDITURES	88	25	162	132	1,379	1,928	266	276	461	540	3	5,273 2/
						Percentages						
10. Highway Expenditures	20.5	32.0	19.8	25.7	13.9	20.1	19.2	18.5	22.6	17.6	-	18.5
11. Other Transportation	-	-	.6	-	.1	-	-	.4	-	.4	-	.1
12. Education Expenditure	23.9	32.0	32.1	28.0	35.5	31.9	38.3	34.0	32.1	29.2	66.7	32.7
13. Health and Sanitation	19.3	12.0	16.0	15.2	11.5	19.0	14.7	19.2	16.0	15.9	33.3	16.0
14. Social Welfare and Veterans' Benefits	12.5	4.0	5.6	5.3	8.9	4.0	5.3	5.1	5.4	6.5	-	6.0
15. Agriculture Expenditure	1.1	4.0	1.2	1.5	2.7	.5	2.2	2.9	1.5	.7	-	1.5
16. Interest Payments	6.8	8.0	8.0	7.6	3.6	4.6	1.9	1.1	- 1.5	3.0	-	3.5
17. General Expenditures	15.9	8.0	16.7	16.7	23.8	19.9	18.4	18.8	23.9	26.7	-	21.7
18. TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source and Footnotes: See p. 249.

Note: Details may not add to totals due to rounding.

*/ For an explanation of the discrepancy between TOTAL "Provincial" EXPENDITURES in Tables A-11 (a) and A-11 (c), see pp. 247-249.

TABLE A - 11(d)

FEDERAL EXPENDITURES ON AGRICULTURE (Public Accounts)

Expenditure	Amount Millions		Per Cent
1. Administrative and Other Farm Service Expenditures, Total		$ 58	20
a) Rehabilitation and Conservation	$ 26		
b) Research Expenditure	27		
c) Administration, etc.	5		
11. Production and Marketing, Total		72	25
a) Freight Assistance Payments	18		
b) Premium on Hogs and Lambs	8		
c) Deficit of Agricultural Products Board and Grain Commission Board	12		
d) Expenditures on Lime Assistance and Animal Health	14		
e) Miscellaneous Expenditures	20		
111. Payments to Farmers and Stabilization Payments, Total		159	55
a) Net Loss of Agricultural Stabilization Board	22		
b) Emergency Fund Deficiency Payments to Western Grain Producers	48		
c) Payments to Western Grain Producers	40		
d) Carrying Costs of Temporary Wheat Reserves	49		
TOTAL		289	100

Source: Public Accounts, 1961-1962, vol. 1, p. 45.

TABLE A - 11(e)

DISTRIBUTION OF PROVINCIAL AND MUNICIPAL DEBT BY OWNERSHIP, (Dec. 31, 1961)

		Provincial		Municipal		Total	
	Class of Ownership	Millions	%	Millions	%	Millions	%
1.	Bank of Canada	-	0.00	-	0.00	-	0.00
2.	Chartered Banks	$ 352	4.30	$ 231	6.02	$ 583	4.85
3.	Provincial and Municipal Governments	2,035	24.84	541	14.09	2,576	21.41
4.	Life and Other Insurance Companies	1,106	13.50	730	19.02	1,836	15.26
5.	Quebec Savings Banks Trust and Loan Companies and Pension Plans	899	10.98	395	10.29	1,294	10.76
6.	All Other Resident Owners	2,031	24.79	906	23.60	2,937	24.41
7.	Non-Resident Owners	1,769	21.59	1,036	26.98	2,805	23.31
8.	Total Debt	8,192	100.00	3,839	100.00	12,031	100.00

Source: Bank of Canada Statistical Summary Supplement, 1962: page 100.

Note: Details may not add to totals due to rounding.

TABLE A - 11 (f)

DISTRIBUTION OF FEDERAL INTEREST PAYMENTS, BY INCOME CLASS

(December 31, 1961)

		Family Money Income Class							
	Class of Ownership	Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
					Millions				
	STANDARD ASSUMPTION								
1.	Chartered Banks	$ 4.2	$ 5.0	$ 4.7	$ 4.7	$ 8.5	$ 11.1	$62.6	$ 100.8
	Insurance Companies								
2.	a) Mutuals	.4	.7	1.4	1.8	3.7	2.8	3.3	14.1
3.	b) Other	1.1	1.3	1.2	1.2	2.2	2.9	16.3	26.2
4.	Mutual Savings Banks	4.8	3.8	3.4	4.5	7.9	6.5	7.2	38.1
5.	Corporations	.9	1.0	1.0	1.0	1.8	2.3	13.0	21.0
	Individuals								
6.	a) Market Securities	11.3	9.5	8.3	10.0	20.3	16.0	24.9	100.3
7.	b) Canada Savings Bonds	18.5	14.5	14.5	13.9	23.8	22.1	36.3	143.6
8.	Total	41.2	35.8	34.5	37.1	68.2	63.7	163.6	444.1
9.	Percentage Distribution of Total (line 8)	9.3	8.1	7.8	8.4	15.3	14.3	36.8	100.0
	ALTERNATE ASSUMPTION								
10.	Total	$86.5	$52.9	$46.7	$44.7	$74.2	$57.8	$81.3	$444.1
11.	Percentage Distribution of Line 10.	19.5	11.9	10.5	10.1	16.7	13.0	18.3	100

Note: Details may not add to totals due to rounding.

Source: See p. 250.

TABLE A - 11 (g)

DISTRIBUTION OF PROVINCIAL AND MUNICIPAL INTEREST PAYMENTS, BY INCOME CLASS

(December 31, 1961)

	Class of Ownership	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
					Millions				
	STANDARD ASSUMPTION								
1.	Chartered Banks	$ .4	$ .4	$ .4	$ .4	$ .8	$ 1.0	$ 5.5	$ 8.9
	Insurance Companies								
2.	a) Mutual	.5	.9	1.8	2.4	4.8	3.6	4.3	18.3
3.	b) Other	.4	.5	.5	.5	.8	1.1	6.0	9.8
4.	Mutual Savings Banks	2.5	2.0	1.7	2.3	4.1	3.4	3.8	19.8
5.	Individual */	5.0	4.1	3.6	3.7	7.5	5.9	15.1	44.9
6.	Total	8.8	7.9	8.0	9.3	18.0	15.0	34.7	101.7
7.	Percentage Distribution of total (line 6)	8.7	7.8	7.9	9.1	17.7	14.7	34.1	100.0
	ALTERNATE ASSUMPTION								
8.	Total	12.1	9.2	9.2	10.5	19.8	15.2	25.7	101.7
9.	Percentage Distribution of (line 8)	11.9	9.0	9.0	10.3	19.5	14.9	25.4	100

Note: Details may not add to totals due to rounding.

*/ Includes corporations.

TABLE A - 12

DISTRIBUTION OF ALL FEDERAL EXPENDITURES, 1961

Line	Public Expenditure	Family Money Income Class: Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Millions							
1.	Highways	$ 4	$ 5	$ 8	$ 12	$ 24	$ 18	$ 13	$ 84
2.	Other Transportation	23	21	33	39	78	70	47	311
3.	Education	6	7	11	14	24	15	16	93
4.	Public Health & Sanitation	59	43	52	59	89	45	19	366
5.	Agriculture	29	50	48	40	53	34	41	295
6.	Social Welfare & Veterans' Payments	596	349	269	277	410	256	111	2,266
7.	Interest Payments on the Public Debt	41	36	34	37	68	64	164	444
8.	Sub Total: All Expenditures Except "General"	758	511	456	477	746	501	410	3,859
	General Expenditures								
9.	Assumption A */	582	320	357	384	561	307	135	2,646
10.	Assumption B */	82	159	259	381	709	543	513	2,646
11.	Assumption C */	126	120	126	164	265	221	724	1,746
12.	Assumption D */	50	162	270	405	730	545	484	2,646
	TOTAL EXPENDITURES								
13.	Assumption A */	1,340	832	812	860	1,307	808	546	6,505
14.	Assumption B */	840	670	714	858	1,455	1,044	924	6,505
15.	Assumption C */	884	631	582	641	1,011	722	1,134	5,605
16.	Assumption D */	809	673	725	882	1,476	1,046	894	6,505

Note: Details may not add to totals due to rounding.

Source: See p. 251.

*/ Assumption A assumes that general, non-allocable expenditures are distributed on a per family basis; B assumes they are distributed proportionately to "broad income"; C assumes they are proportional to capital income: D assumes they are distributed proportional to disposable income.

TABLE A - 13

DISTRIBUTION OF ALL PROVINCIAL AND LOCAL EXPENDITURES, 1961

Line	Public Expenditure	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Millions							
1.	Highways	$ 47	$ 51	$ 87	$131	$266	$196	$138	$ 916
2.	Education	155	183	253	298	471	237	130	1,727
3.	Public Health and Sanitation	150	101	118	130	194	100	43	836
4.	Agriculture	32	15	11	7	7	3	2	77
5.	Social Welfare and Veterans' Payments	110	77	56	54	81	58	28	464
6.	Interest Payments on the Public Debt	9	8	8	9	18	15	35	102
7.	Sub Total: All Expenditures Except "General"	503	434	533	628	1,037	611	376	4,122
	General Expenditures								
8.	Assumption A */	251	138	154	166	243	133	59	1,144
9.	Assumption B */	35	69	112	165	307	234	222	1,144
10.	Assumption C */	54	52	54	71	115	96	313	755
11.	Assumption D */	22	70	117	175	316	235	209	1,144
	TOTAL EXPENDITURES								
12.	Assumption A */	754	572	687	794	1,280	744	436	5,266
13.	Assumption B */	538	503	645	793	1,344	845	599	5,266
14.	Assumption C */	557	486	587	699	1,152	707	689	4,877
15.	Assumption D */	525	504	650	803	1,353	846	586	5,266

Note: Details may not add to totals due to rounding.

Source: See p. 253.

*/ Assumption A assumes that the "general" or non-allocable expenditures are distributed on a per family basis; B assumes they are distributed proportional to "broad income"; C assumes that they are proportional to capital income; and D assumes that they are proportional to disposable income.

TABLE A - 14

THE INCIDENCE OF ALL FEDERAL EXPENDITURES, 1961: USING THE "BROAD INCOME" BASE

Line	Public Expenditure	Family Money Income Class: Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
1.	Highways	.5	.3	.3	.3	.3	.3	.2	.3
2.	Other Transportation	2.7	1.3	1.2	1.0	1.1	1.3	.9	1.2
3.	Education	.7	.5	.4	.4	.3	.3	.3	.3
4.	Public Health and Sanitation	7.0	2.6	2.0	1.5	1.2	.8	.4	1.4
5.	Agriculture	3.4	3.1	1.8	1.0	.7	.6	.8	1.1
6.	Social Welfare and Veterans' Payments	70.4	21.7	10.2	7.2	5.7	4.6	2.1	8.4
7.	Interest Payments on the Public Debt	4.9	2.2	1.3	1.0	.9	1.2	3.1	1.7
8.	Sub Total: All Expenditures Except "General"	89.6	31.7	17.2	12.3	10.3	9.1	7.9	14.4
	General Expenditures								
9.	Assumption A */	68.8	19.9	13.5	9.9	7.8	5.6	2.6	9.8
10.	Assumption B */	9.7	9.9	9.8	9.9	9.8	9.8	9.8	9.8
11.	Assumption C */	14.9	7.4	4.8	4.2	3.7	4.0	13.9	6.5
12.	Assumption D */	6.0	10.0	10.2	10.5	10.1	9.9	9.3	9.8
	TOTAL EXPENDITURES								
13.	Assumption A */	158.4	51.6	30.7	22.3	18.1	14.7	10.5	24.2
14.	Assumption B */	99.3	41.6	27.0	22.2	20.1	18.9	17.7	24.2
15.	Assumption C */	104.5	39.2	22.0	16.6	14.0	13.1	21.8	20.8
16.	Assumption D */	95.6	41.7	27.4	22.8	20.4	19.0	17.2	24.2

Note: Details may not add to totals due to rounding.

Source: See p. 255.

*/ Assumption A assumes that the "general" or non-allocable expenditures are distributed equally among all families; assumption B assumes that they are distributed proportional to "broad income"; assumption C assumes that they are distributed proportional to capital income; and assumption D assumes that the "general" expenditures are proportional to disposable income.

TABLE A - 15

THE INCIDENCE OF ALL PROVINCIAL AND MUNICIPAL EXPENDITURES, 1961: USING THE "BROAD INCOME" BASE

Line	Public Expenditure	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000 6,999	$7,000 9,999	$10,000 and Over	Total
		Percentages							
1.	Highways	5.6	3.2	3.3	3.4	3.7	3.6	2.7	3.4
2.	Education	18.3	11.4	9.5	7.7	6.5	4.3	2.5	6.4
3.	Public Health and Sanitation	17.8	6.2	4.5	3.4	2.7	1.8	.8	3.1
4.	Agriculture	3.8	.9	.4	.2	.1	.1	.0	.3
5.	Social Welfare and Veterans' Payments	13.0	4.8	2.1	1.4	1.1	1.1	.5	1.7
6.	Interest Payments on the Public Debt	1.0	.5	.3	.2	.2	.3	.7	.4
7.	Sub Total: All Expenditures Except "General"	59.5	27.0	20.1	16.3	14.4	11.1	7.2	15.3
	General Expenditures								
8.	Assumption A */	29.7	8.6	5.8	4.3	3.4	2.4	1.1	4.2
9.	Assumption B */	4.1	4.2	4.2	4.3	4.3	4.2	4.3	4.2
10.	Assumption C */	6.4	3.2	2.0	1.8	1.6	1.7	6.0	2.8
11.	Assumption D */	2.6	4.3	4.4	4.5	4.4	4.3	4.0	4.2
	TOTAL EXPENDITURES								
12.	Assumption A */	89.1	35.5	26.0	20.6	17.7	13.5	8.4	19.6
13.	Assumption B */	63.6	31.2	24.4	20.5	18.6	15.3	11.5	19.6
14.	Assumption C */	65.8	30.2	22.2	18.1	16.0	12.8	13.2	18.1
15.	Assumption D */	62.1	31.3	24.6	20.8	18.7	15.3	11.2	19.6

Note: Details may not add to totals due to rounding.

Source: See p. 255.

*/ Assumption A assumes that the "general" or non-allocable expenditures are distributed equally among all families; B assumes that they are distributed proportional to "broad income"; C assumes that they are distributed proportional to capital income; and D assumes the the "general" expenditures are proportional to disposable income.

TABLE A -16

THE INCIDENCE OF ALL EXPENDITURES, 1961: USING THE "ADJUSTED BROAD INCOME" BASE: FOR "GENERAL" EXPENDITURE ASSUMPTION A

Line	Public Expenditures	Family Money Income Class: Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
	FEDERAL EXPENDITURES								
1.	Highways	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
2.	Other Transportation	0.9	0.8	1.0	0.9	1.0	1.4	1.1	1.1
3.	Education	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.3
4.	Public Health and Sanitation	2.4	1.7	1.6	1.4	1.2	0.9	0.5	1.2
5.	Agriculture	1.2	2.0	1.5	0.9	0.7	0.7	1.0	1.0
6.	Social Welfare and Veterans' Payments	24.5	14.0	8.2	6.4	5.5	4.9	2.6	7.7
7.	Interest Payments on the Public Debt	1.7	1.4	1.0	0.9	0.9	1.2	3.9	1.5
8.	Sub Total: All Expenditures Except "General"	31.2	20.6	13.9	11.0	10.0	9.7	9.8	13.1
9.	General Expenditures (Assumption A)	23.9	12.9	10.8	8.8	7.5	5.9	3.2	9.0
10.	Total Federal Expenditures	55.1	33.6	24.7	19.8	17.6	15.6	13.0	22.2
	PROVINCIAL AND LOCAL EXPENDITURES								
11.	Highways	1.9	2.1	2.6	3.0	3.6	3.8	3.3	3.1
12.	Education	6.4	7.4	7.7	6.9	6.3	4.6	3.1	5.9
13.	Public Health and Sanitation	6.2	4.1	3.6	3.0	2.6	1.9	1.0	2.8
14.	Agriculture	1.3	0.6	0.3	0.2	0.1	0.1	0.0	0.3
15.	Social Welfare and Veterans' Payments	4.5	3.1	1.7	1.2	1.1	1.1	0.7	1.6
16.	Interest Payments on the Public Debt	0.4	0.3	0.2	0.2	0.2	0.3	0.8	0.3
17.	Sub Total: All Expenditures Except "General"	20.7	17.5	16.2	14.5	13.9	11.8	9.0	14.0
18.	General Expenditures (Assumption A)	10.3	5.6	4.7	3.8	3.3	2.6	1.4	3.9
19.	Total Provincial and Local Expenditures	31.0	23.0	20.9	18.3	17.2	14.4	10.4	17.9
20.	TOTAL EXPENDITURES, ALL LEVELS	86.1	56.7	45.5	38.1	34.8	30.0	23.4	40.1

Note: Details may not add to totals due to rounding.

TABLE A - 17

THE INCIDENCE OF ALL EXPENDITURES, 1961: USING THE "ADJUSTED BROAD INCOME" BASE: FOR "GENERAL" EXPENDITURE ASSUMPTION B

Line	Public Expenditures	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
	FEDERAL EXPENDITURES								
1.	Highways	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
2.	Other Transportation	1.3	0.9	1.0	0.9	1.0	1.3	1.0	1.1
3.	Education	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
4.	Public Health and Sanitation	3.4	1.9	1.6	1.4	1.2	0.8	0.4	1.2
5.	Agriculture	1.7	2.2	1.5	0.9	0.7	0.6	0.9	1.0
6.	Social Welfare and Veterans' Payments	34.7	15.5	8.5	6.4	5.4	4.6	2.3	7.7
7.	Interest Payments on the Public Debt	2.4	1.6	1.1	0.8	0.9	1.2	3.5	1.5
8.	Sub Total: All Expenditures Except "General"	44.2	22.6	14.5	11.0	9.7	9.1	8.7	13.1
9.	General Expenditures	4.8	7.0	8.2	8.8	9.3	9.8	10.8	9.0
10.	Total Federal Expenditures	48.9	29.7	22.7	19.8	19.0	18.9	19.5	22.2
	PROVINCIAL AND LOCAL EXPENDITURES								
11.	Highways	2.7	2.3	2.8	3.0	3.5	3.5	2.9	3.1
12.	Education	9.0	8.1	8.0	6.9	6.2	4.3	2.7	5.9
13.	Public Health and Sanitation	8.7	4.5	3.7	3.0	2.5	1.8	0.9	2.8
14.	Agriculture	1.9	0.7	0.3	0.2	0.1	0.0	0.0	0.3
15.	Social Welfare and Veterans' Payments	6.4	3.4	1.8	1.2	1.1	1.0	0.6	1.6
16.	Interest Payments on the Public Debt	0.5	0.3	0.2	0.2	0.2	0.3	0.7	0.3
17.	Sub Total: All Expenditures Except "General"	29.3	19.2	16.9	14.5	13.5	11.1	7.9	14.0
18.	General Expenditures	2.0	3.1	3.5	3.8	4.0	4.2	4.7	3.9
19.	Total Provincial and Local Expenditures	31.4	22.3	20.5	18.3	17.6	15.3	12.7	17.9
20.	TOTAL EXPENDITURES, ALL LEVELS	80.3	52.0	43.2	38.1	36.6	34.2	32.2	40.1

Note: Details may not add to totals due to rounding.

TABLE A - 18

THE INCIDENCE OF ALL EXPENDITURES, 1961: USING THE "ADJUSTED BROAD INCOME" BASE: FOR "GENERAL" EXPENDITURE ASSUMPTION C

Line	Public Expenditures	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
	FEDERAL EXPENDITURES								
1.	Highways	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
2.	Other Transportation	1.3	0.9	1.1	1.0	1.1	1.4	0.9	1.1
3.	Education	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3
4.	Public Health and Sanitation	3.3	2.0	1.7	1.5	1.3	0.9	0.4	1.3
5.	Agriculture	1.6	2.3	1.6	1.0	0.8	0.7	0.8	1.0
6.	Social Welfare and Veterans' Payments	33.5	15.9	9.1	6.9	5.8	5.1	2.2	8.1
7.	Interest Payments on the Public Debt	2.3	1.6	1.1	0.9	1.0	1.3	3.3	1.6
8.	Sub Total: All Expenditures Except "General"	42.6	23.2	15.4	11.8	10.6	9.9	8.1	13.7
9.	General Expenditures (Assumption C)	7.1	5.5	4.2	4.1	3.8	4.4	14.4	6.2
	Total Federal Expenditures	49.7	28.7	19.7	15.9	14.4	14.3	22.5	20.0
	PROVINCIAL AND LOCAL EXPENDITURES								
11.	Highways	2.6	2.3	2.9	3.2	3.8	3.9	2.7	3.3
12.	Education	8.7	8.3	8.5	7.4	6.7	4.7	2.6	6.1
13.	Public Health and Sanitation	8.4	4.6	4.0	3.2	2.8	2.0	0.8	3.0
14.	Agriculture	1.8	0.7	0.4	0.2	0.1	0.1	0.0	0.3
15.	Social Welfare and Veterans' Payments	6.2	3.5	1.9	1.3	1.1	1.1	0.5	1.6
16.	Interest Payments on the Public Debt	0.5	0.4	0.3	0.2	0.3	0.3	0.7	0.4
17.	Sub Total: All Expenditures Except "General"	28.3	19.7	18.0	15.6	14.8	12.1	7.5	14.7
18.	General Expenditures (Assumption C)	3.0	2.4	1.8	1.8	1.6	1.9	6.2	2.7
19.	Total Provincial and Local Expenditures	31.3	22.1	19.8	17.4	16.4	14.0	13.7	17.4
20.	TOTAL EXPENDITURES, ALL LEVELS	81.0	50.8	39.5	33.3	30.8	28.2	36.2	37.3

Note: Details may not add to totals due to rounding.

TABLE A - 19

THE INCIDENCE OF ALL EXPENDITURES, 1961: USING THE "ADJUSTED BROAD INCOME" BASE: FOR "GENERAL" EXPENDITURE ASSUMPTION D

Line	Public Expenditures	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
	FEDERAL EXPENDITURES								
1.	Highways	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
2.	Other Transportation	1.4	0.9	1.0	0.9	1.0	1.3	1.0	1.1
3.	Education	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
4.	Public Health and Sanitation	3.5	1.9	1.6	1.4	1.2	0.8	0.4	1.2
5.	Agriculture	1.7	2.2	1.5	0.9	0.7	0.6	0.9	1.0
6.	Social Welfare and Veterans' Payments	35.5	15.5	8.5	6.3	5.3	4.6	2.4	7.7
7.	Interest Payments on the Public Debt	2.4	1.6	1.1	0.8	0.9	1.2	3.5	1.5
8.	Sub Total: All Expenditures Except "General"	45.2	22.6	14.4	10.9	9.7	9.1	8.7	13.1
9.	General Expenditures (Assumption D)	3.0	7.2	8.5	9.3	9.5	9.9	10.3	9.0
10.	Total Federal Expenditures	48.2	29.8	22.9	20.2	19.2	18.9	19.1	22.2
	PROVINCIAL AND LOCAL EXPENDITURES								
11.	Highways	2.8	2.3	2.7	3.0	3.5	3.6	2.9	3.1
12.	Education	9.2	8.1	8.0	6.8	6.1	4.3	2.8	5.9
13.	Public Health and Sanitation	8.9	4.5	3.7	3.0	2.5	1.8	0.9	2.8
14.	Agriculture	1.9	0.7	0.3	0.2	0.1	0.1	0.0	0.3
15.	Social Welfare and Veterans' Payments	6.6	3.4	1.8	1.2	1.1	1.1	0.6	1.6
16.	Interest Payments on the Public Debt	0.5	0.4	0.3	0.2	0.2	0.3	0.7	0.3
17.	Sub Total: All Expenditures Except "General"	30.0	19.2	16.8	14.4	13.5	11.1	8.0	14.0
18.	General Expenditures (Assumption D)	1.3	3.1	3.7	4.0	4.1	4.3	4.5	3.9
19.	Total Federal Expenditures	31.3	22.3	20.5	18.4	17.6	15.3	12.5	17.9
20.	TOTAL EXPENDITURES, ALL LEVELS	79.5	52.1	43.4	38.6	36.8	34.3	31.6	40.1

Note: Details may not add to totals due to rounding.

TABLE A - 20

DISTRIBUTION OF THE NET FISCAL AMOUNT, 1961

Line	Item	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Millions							
	ASSUMPTION A								
1.	Federal Level	$1,109	$559	$336	$190	$- 86	$-336	$-693	$1,078
2.	Provincial and Local Levels	477	315	310	287	+ 304	0	-328	1,364
3.	Total, All Levels	1,586	874	646	477	218	-336	-1,021	2,442
	ASSUMPTION B								
4.	Federal Level	609	397	238	188	62	-100	- 315	1,078
5.	Provincial and Local Levels	261	246	268	286	368	101	- 165	1,364
6.	Total, All Levels	870	643	506	474	430	1	- 480	2,442
	ASSUMPTION C								
7.	Federal Level	653	358	106	- 29	- 382	-422	- 105	178
8.	Provincial and Local Levels	280	229	210	192	176	- 37	- 75	975
9.	Total, All Levels	933	587	316	163	- 206	-459	- 180	1,153
	ASSUMPTION D								
10.	Federal Level	578	400	249	212	83	- 98	- 345	1,078
11.	Provincial and Local Levels	248	247	273	296	377	102	- 178	1,364
12.	Total, All Levels	826	647	522	508	460	4	- 523	2,442

Note: Details may not add to totals due to rounding.

TABLE A - 21

EFFECTIVE NET FISCAL INCIDENCE, 1961: USING THE "BROAD INCOME" BASE

Line	Item	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
	ASSUMPTION A								
1.	Federal Level	131.1	34.7	12.7	4.9	- 1.2	- 6.1	- 13.3	4.0
2.	Provincial and Local Levels	56.4	19.6	11.7	7.4	4.2	0.0	- 6.3	5.1
3.	Total, All Levels	187.5	54.3	24.4	12.3	3.0	- 6.1	- 19.6	9.1
	ASSUMPTION B								
4.	Federal Level	72.0	24.6	9.0	4.9	0.8	- 1.8	- 6.0	4.0
5.	Provincial and Local Levels	30.9	15.3	10.1	7.4	5.1	1.8	- 3.2	5.1
6.	Total, All Levels	102.8	39.9	19.1	12.3	5.9	0.0	- 9.2	9.1
	ASSUMPTION C								
7.	Federal Level	77.2	22.2	4.0	- 0.7	- 5.3	- 7.6	- 2.0	0.7
8.	Provincial and Local Levels	33.1	14.2	7.9	5.0	2.4	- 0.7	- 1.4	3.6
9.	Total, All Levels	110.3	36.4	11.9	4.2	- 2.9	- 8.3	- 3.4	4.3
	ASSUMPTION D								
10.	Federal Level	68.3	24.8	9.4	5.5	1.1	- 1.8	- 6.6	4.0
11.	Provincial and Local Levels	29.3	15.3	10.3	7.7	5.2	1.8	- 3.4	5.1
12.	Total, All Levels	97.6	40.2	19.7	13.2	6.4	0.1	- 10.0	9.1

Note: Details may not add to totals due to rounding.

TABLE A - 22

EFFECTIVE NET FISCAL INCIDENCE, 1961: USING THE "ADJUSTED BROAD INCOME" BASE

Line	Item	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
	ASSUMPTION A								
1.	Federal Level	45.6	22.5	10.2	4.4	- 1.2	- 6.5	- 16.5	3.7
2.	Provincial and Local Levels	19.6	12.7	9.4	6.6	4.1	0.0	- 7.8	4.6
3.	Total, All Levels	65.2	35.2	19.6	11.0	2.9	- 6.5	- 24.4	8.3
	ASSUMPTION B								
4.	Federal Level	35.5	17.6	7.6	4.3	0.8	- 1.8	- 6.7	3.7
5.	Provincial and Local Levels	15.2	10.9	8.5	6.6	4.8	1.8	- 3.5	4.6
6.	Total, All Levels	50.7	28.5	16.1	10.9	5.6	0.0	- 10.1	8.3
	ASSUMPTION C								
7.	Federal Level	36.7	16.3	3.6	- 0.7	- 5.4	- 8.3	- 2.1	0.6
8.	Provincial and Local Levels	15.7	10.4	7.1	4.8	2.5	- 0.7	- 1.5	3.5
9.	Total, All Levels	52.4	26.7	10.7	4.0	- 2.9	- 9.1	- 3.6	4.1
	ASSUMPTION D								
10.	Federal Level	34.4	17.7	7.9	4.9	1.1	- 1.8	- 7.4	3.7
11.	Provincial and Local Levels	14.8	10.9	8.6	6.8	4.9	1.8	- 3.8	4.6
12.	Total, All Levels	49.2	28.7	16.5	11.6	6.0	0.1	- 11.2	8.3

Note: Details may not add to totals due to rounding.

TABLE A - 23

NET FISCAL INCIDENCE WITH AN HYPOTHETICAL ELIMINATION OF THE PUBLIC SECTOR DEFICIT */

Line	Item	Family Money Income Bracket							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
					Millions				
	DISTRIBUTION OF DEFICIT								
1.	Federal Level	46	54	95	133	277	227	246	1,078
2.	Provincial and Local Levels	97	90	132	177	341	259	267	1,364
3.	Total, all Levels	143	144	227	310	618	486	513	2,442
	DISTRIBUTION OF NET FISCAL AMOUNT AFTER HYPOTHETICAL ELIMINATION OF DEFICIT								
4.	Federal Level	563	343	143	55	- 215	- 327	- 561	0
5.	Provincial and Local Levels	164	156	136	109	27	- 158	- 432	0
6.	Total, All Levels	727	499	279	164	- 188	- 485	- 993	0
					Percentages				
	DISTRIBUTION OF NET FISCAL INCIDENCE AFTER HYPOTHETICAL ELIMINATION OF DEFICIT								
	"BROAD INCOME"								
7.	Federal Level	66.5	21.3	5.4	1.4	- 3.0	- 5.9	- 10.9	0
8.	Provincial and Local Levels	19.4	9.7	5.1	2.8	0.4	- 2.9	- 8.3	0
9.	Total, All Levels	85.9	31.0	10.5	4.2	- 2.6	- 8.8	- 19.1	0
	"ADJUSTED BROAD INCOME"								
10.	Federal Level	32.8	15.2	4.5	1.3	- 2.8	- 5.9	-11.9	0
11.	Provincial and Local Levels	9.6	6.9	4.3	2.5	0.4	- 2.9	- 9.1	0
12.	Total, All Levels	42.4	22.1	8.8	3.8	- 2.4	- 8.8	-21.0	0

*/ For "general" expenditure assumption B, only.

Note: Details may not add to totals due to rounding.

TABLE A - 24

VARIOUS CONFIDENCE LIMITS FOR TOTAL TAX, EXPENDITURE AND NET FISCAL INCIDENCE, 1961. */

Line	Item	Family Money Income Class							
		Under $2,000	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-6,999	$7,000-9,999	$10,000 and Over	Total
		Percentages							
	CASE I								
1.	TOTAL TAX INCIDENCE	60.0	32.9	32.2	30.5	32.8	34.2	38.4	34.7
2.	10% of Total Tax Incidence	6.0	3.3	3.2	3.0	3.3	3.4	3.8	3.5
3.	Upper Limit (uu)	66.0	36.2	35.4	33.5	36.1	37.6	42.2	38.2
4.	Lower Limit (ll)	54.0	29.6	29.0	27.5	29.5	30.8	34.6	31.2
5.	TOTAL EXPENDITURE INCIDENCE	162.9	72.8	51.4	42.7	38.7	34.2	29.2	43.8
6.	20% of Total Expenditure Incidence	32.5	14.6	10.3	8.5	7.7	6.8	5.8	8.8
7.	Upper Limit (uu)	195.4	87.4	61.7	51.2	46.4	41.0	35.0	52.6
8.	Lower Limit (ll)	130.4	58.2	41.1	36.2	31.0	27.4	23.4	35.0
9.	NET FISCAL INCIDENCE	102.8	39.9	19.1	12.3	5.9	0.0	- 9.2	9.1
10.	Upper Limit (uu)	129.4	51.2	26.3	17.7	10.3	3.4	- 7.2	14.4
11.	Lower Limit (ll)	76.4	28.6	12.1	8.7	1.5	- 3.4	-11.2	3.8
	CASE II								
	TOTAL TAX INCIDENCE								
12.	20% of Total Tax Incidence	12.0	6.6	6.4	6.1	6.6	6.8	7.7	6.9
13.	Upper Limit (uu)	72.0	39.5	38.6	36.6	39.4	41.0	46.1	41.6
14.	Lower Limit (ll)	48.0	26.3	25.8	24.4	26.2	27.4	30.7	27.8
	TOTAL EXPENDITURE INCIDENCE								
15.	30% of Total Tax Incidence	48.9	21.8	15.4	12.8	11.6	10.3	8.8	13.1
16.	Upper Limit (uu)	211.8	94.6	66.8	55.5	50.3	44.5	38.0	56.9
17.	Lower Limit (ll)	114.0	51.0	36.0	29.9	27.1	23.9	20.4	30.7
	NET FISCAL INCIDENCE								
18.	Upper Limit (uu)	139.8	55.1	28.2	18.9	10.9	3.5	- 8.1	15.3
19.	Lower Limit (ll)	66.0	24.7	10.2	5.5	0.9	- 3.5	-10.3	2.9

*/ Using the "broad income" base, and for the standard case.

Note: Details may not add to totals due to rounding.

SUPPLEMENTARY TABLES

SOURCES AND REFERENCES

TABLE A-1

Lines 1, 3 through 10. The distributions for the various income components are from: Dominion Bureau of Statistics, Survey of Consumer Finances, 1962, cat. no. 17-521, hereafter referred to as the 1961 Survey of Consumer Finances. We have employed the Survey data, not adjusted by tax statistics, here and elsewhere throughout this investigation. Investment income, line 4, includes bond interest, dividends, bank interest, mortgage interest, net rental income and estate income. This item, by the way, appears to be considerably under-reported in the Survey data (investment income in the Survey is 48% of investment income reported in the National Accounts). We assume that the under-reporting is distributionally neutral.

Other transfer payments, line 7, include veterans' pensions, unemployment benefits, workmen's compensation, direct relief, pensions for the blind, mothers' allowances, disabled persons' pensions and miscellaneous transfer payments.

Total family money income, line 9, includes the Survey distributions of lines 1, 3 through 8, plus "other" miscellaneous income such as income from abroad.

Line 2. The series for "covered" wages is derived from: The Canadian Tax Foundation, National Finances, 1961-62, Toronto, 1961, p. 97, which gives the employee contribution to unemployment insurance by earnings level. The contribution varies from twenty cents per week at an annual wage of $460 to ninety-six cents per week at an annual wage of $3,588 and over. Beyond an income of $5,460 contributions cease, as such wage-earners do not fall under the scope of the Unemployment Insurance Act, (except for those who are paid on an hourly or piece rate; the number so qualified is believed to be very small). We computed the contribution rate as a per cent of the annual wage for the relevant income brackets; we then multiplied these rates by the distribution of wage and salary income to result in the distribution of unemployment insurance contributions. This series is called "covered" wages in line 2.

Lines 11, 12 and 13. The farm-related series are estimated from data provided by: The Dominion Bureau of Statistics, Farm Income and Expenditure Survey, 1958 (Schedule A), Table AFR-11 (Section 7 of 7), Canada, Central Research Division (as yet unpublished data). The series are for all farm operators who obtain over 40% of their income from the operation of a farm.

Line 14. The series "dividends received" is taken from: Department of National Revenue, 1963 Taxation Statistics, Queen's Printer, Ottawa, 1963, Section 1, Table 2, for both taxable and non-taxable returns. This source groups income by individual tax returns; consequently it will indicate an income distribution which is more heavily weighted toward the lower income brackets than the 1962 Survey of Consumer Finances. The income of a husband and wife, each of whom earns $5,000 would fall in the "$10,000 and over" Survey data income bracket and in the "$5,000-$6,999" Taxation Statistics data income bracket. Unfortunately, this is the only source of dividend income by income class, and there is no available method for adjusting the series to fit the Survey data concept. Line 14, therefore, is probably less progressive than a "true" dividends series.

Line 15. The distribution of income for individuals whose major source of income is military pay and allowances is estimated from unpublished data provided by the Department of National Defence. Given the service strength by rank, and the average per capita income by rank, it is possible to derive a distribution of military pay and allowances by income class. Summing the income distributions for all services results in the series given in line 15.

Lines 16 through 23. The asset data are from the 1958 Survey of Consumer Finances for assets held in the spring of 1959 (Table 55, p. 61). An extrapolating procedure is applied to the 1959 data to adjust them to 1961. This extrapolating procedure assumes that the relationship between income and various assets held did not change over the time period involved. First, each asset distribution is expressed as a percentage of the 1959 income distribution; i.e., if first bracket income and liquid assets are $1,000 and $100 respectively, then liquid assets are 10% of income in 1959 in the first bracket. Secondly, this ratio is applied to the 1961 first bracket income to obtain the amount of 1961 liquid assets held in the first bracket. This gives us a distribution of the amount of liquid assets, by income class, in 1961, the percentage distribution of which appears in line 16.

Line 23. The Dominion Bureau of Statistics provided the distribution of aggregate estimated gross rental value of owner-occupied homes by income size groups for 1959 (unpublished data from the 1958 Survey of Consumer Finances). It is necessary to subtract from this estimated gross rental value the distribution of owner-occupied home expenses (municipal property taxes, mortgage interest, repairs, etc.), to arrive at a net rental figure. The distribution of owner-occupied home expenses is obtained by multiplying the distribution of home owners (1959 Survey of Consumer Finances, Table 12, p. 33) by the distribution of average dollar expenditure on all home owner expenses (1959 Survey of Consumer Expenditures, unpublished data provided by the Consumer Expenditure Section for owning families and unattached individuals). Gross rental value minus home expenses equals net rental value; the extrapolating procedure then adjusts the series to 1961.

This is not the place to enter into a discussion of the differences in estimates from the Survey data and the National Accounts data. However, it is notable that the imputed net rental value given in the latter source (for 1959) is $470 million, whereas the former source (where individuals are asked to estimate the rental value of their homes——spring of 1959) results in a net rental value of $1,796 million. The difference is greater than three times, and suggests that the National Accounts data are probably understated.

Lines 24 and 25. The distributions of the individual income tax and rent payments are derived from unpublished data of the 1959 Survey of Consumer Expenditures. For each consumption classification the Survey presents the average dollar expenditure by income class for all families and unattached individuals, for cities with a population in excess of 15,000, for the year 1959. This distribution of average dollar expenditures is then multiplied by the distribution of families and unattached individuals residing in cities with a population in excess of 15,000 (unpublished data from the 1959 Survey of Consumer Finances); this results in the total distribution of expenditures for urban areas (comparable to the Surveys).

The 1959 data are adjusted to 1961 by the extrapolating procedure which was explained above (lines 16 to 23). The individual income tax item also includes several minor tax items, such as, poll tax, duty on parcels, and personal property taxes. It was impossible to separate these items from the income tax, but they are hardly of a size to significantly alter the above pattern (the income tax was 99.1% of the personal tax, 1959 Survey of Consumer Expenditures, p. 38).

Line 26. The distribution of net rental income is from: Department of National Revenue, 1963 Taxation Statistics, Queen's Printer, (Ottawa, 1963), Section 1, Table 2, for both taxable and non-taxable returns. This series is open to the same criticism as line 14 of this table.

Lines 27 and 28. The distributions of the estimated value of farm land (and agricultural buildings) and farm houses are from the 1958 Farm Survey (Schedule A), op. cit., and are obtained in the same manner as lines 11, 12 and 13, this table.

Line 29. The distribution of factor incomes is the percentage distribution of the sum of lines 2, 3, 4, 5, 6, 12 and 15, Table A-4.

Line 30. The distribution of hospital insurance premiums, which is used to allocate these payments in those provinces which have a hospital insurance plan, is derived from data in the 1961 Survey of Consumer Finances. In most provinces families pay a rate which is double the individual rate. We gave each family the weight of two, each individual the weight of one and the percentage distribution of the sum of the two is given in line 30.

Lines 31 and 32. The automobile-related series are derived in the same manner as lines 24 and 25. We had to rely on urban consumption data only, as farm data in such detail is not available. The series, automobile operation, while mainly composed of gasoline and oil expenditure, also includes service repairs and automobile insurance.

Line 33. The distribution of non-farm children under sixteen years is derived from data provided by the 1961 Survey of Consumer Finances. Table 9 provides information on the percentage distribution of families by the number of children under sixteen years for each income bracket. D.B.S. provided the distribution of the number of families by income bracket, and this permitted an estimation of the number of families by the number of children under sixteen years. It is then a straightforward matter to multiply each family by a factor—depending on the number of children per family——in order to derive a distribution of the number of children under sixteen years. Line 33 is the percentage distribution of the number of children by the income brackets of their parents.

Line 34. The distribution of farm children under sixteen years is derived from the 1958 Farm Survey, op. cit.

Line 35. The distribution of all children under sixteen years is the weighted average of lines 33 and 34. This is not an entirely satisfactory procedure as the years differ for both sources. Unfortunately, there is no acceptable method of grossing-up the 1958 Farm Survey; this point was discussed in some detail in Chapter 1. It seemed preferable, however, to live with the probable error due to the inclusion of 1958 farm data, rather than to exclude the farm sector from the estimates.

Line 36. The estimated distribution of university students for 1961 is derived from data provided in the D.B.S., University Student Expenditure and Income in Canada, 1956-57, The Queen's Printer and Controller of Stationery, Catalogue No. 81-509, Ottawa, 1959, p. 15. The 1957 distribution of the families of university and college students (7.4%, 11.6%, 17.5%, 14.8%, 21.3%, 12.2%, 15.2% and 100%, by increasing income brackets) was extrapolated to 1961 by the following method: the ratio of families of students attending college, to all Canadian families, in 1957, by income brackets, was computed. This ratio was then applied to the 1961 distribution of all Canadian families by income brackets to result in the estimated 1961 distribution of university students. It was noted in the text that this procedure tacitly assumed that only income affects the decision to attend college. While this is clearly not true, it is a necessary simplification in order to arrive at an acceptable series.

Line 37. The estimated value of all owned property is the weighted average of lines 22 and 28. From the 1958 Farm Survey we obtained the distribution of the estimated value of farm operator homes. From the 1958 Survey of Consumer Finances we obtained the distribution of the estimated value of non-farm owner-occupied homes. The sum of these two

series is then extrapolated to 1961 (by the extrapolating procedure outlined above). Assuming that the value of land owned is proportional to the value of owner-occupied homes, then the percentage distribution of the derived series describes the distribution of all owned property.

Line 38. The series, transported products, is derived from the 1959 Survey of Consumer Expenditures mentioned previously. The note to Table A-2 explains how we derived the consumption series for 1961. From Table 15 of the above publication we then estimated the value of consumer expenditures, by expenditure category, which could properly be called "transported goods". For example, the value of all physical commodities would be allocated to the "transportable" category, whereas the value of such expenditures as rent payments, property taxes, medical care, interest payments, tuition fees, etc., would be allocated to the "non-transportable" category. The value of transported goods as a percentage of the value of total goods, by expenditure category, is: food——100%; housing, fuel, heat, water and household operation——45%; furnishings and household equipment——100%; clothing——100%; transportation——65%; medical care——20%; personal care——55%; recreation, reading and education——56%; and miscellaneous——45%.

These ratios were applied to the distributions of consumption expenditures, and then the results were summed. This total is the value of transported products, the percentage distribution of which occurs in line 38.

Line 39. The "other" in other transportation expenditures includes consumer outlays on air, rail, water and rapid transit travel. The series is derived from the 1959 Survey of Consumer Expenditures for the urban population only; a similar classification is not available for the rural population. The series is derived in the same manner as described for table A-2.

Line 40. The percentage distribution of all families and unattached individuals is a weighted average of lines 10 and 11. The percentage distribution of non-farm families and unattached individuals is from the 1961 Survey of Consumer Finances, whereas the distribution of farm operators is from the 1958 Farm Survey. It is assumed that the 1958 distribution of farm operators is applicable to the 1961 farm population.

Line 41. The distribution of hospital care benefits is an approximation to the potential benefits which are received. However, in view of the dearth of available statistics it is the only acceptable working hypothesis. The series is a distribution, by income class, of all individuals——i.e., families are divided into their respective sizes; the result should be a distribution of all persons residing in Canada. However, (1) survey inadequacies, such as listing only children sixteen years or under, and (2) our methodology of classifying all families having "four or more children" as having four children only, resulted in an understatement. There is no reason to expect, however, that the understatement would tend to increase or decrease the inequality of the distribution.

In effect line 41 is a weighted average of lines 35 and 40——the addition of the distribution of children under 16 to the distribution of families and unattached individuals.

Line 42. The series on owner-occupied and renter-occupied housing units is meant to reflect the distribution of units on whose behalf government expenditures on sanitation and sewage are incurred. The 1961 Survey of Consumer Finances provides a distribution by income class of all families and unattached individuals who are owners and renters. The weighted average of these two series, which reflects a measure of all housing units, is presented in line 42.

Line 43. The estimated distribution of veterans is derived from data provided in the 1961 Survey of Consumer Finances. It is assumed that: (1) World War II veterans are randomly distributed among families where the age of the head is 40-64 years; and (2) World War I veterans are randomly distributed among families where the age of the head is 65 years and over. The percentage distribution of families where the age of the head is 40-64 years is the weighted average of families where the age of the head is 40-50 years and 50-64 years.

The number of World War I veterans (or dependent families) receiving war pensions is one third of all veterans. We used this ratio to derive a weighted average of all veterans, the percentage distribution of which appears in line 43.

Line 44. The distribution of "broad income" is the percentage distribution of line 20, Table A-4.

Line 45. Disposable income is obtained by subtracting the distribution of total tax payments, line 18, Table A-5, from the distribution of income, line 20, Table A-4. The percentage distribution of this series appears in line 45.

TABLE A-2

This table is obtained by integrating the results of the 1958 Farm Survey and the 1959 Survey of Consumer Expenditures. The urban estimation for 1959 is described in Table A-1, lines 24-25. The distribution of farm family (and unattached individuals) living expenditures is from the (as yet) unpublished data of the farm survey.

This latter survey includes farm operators who earn as little as one per cent of their aggregate income from the operation of a farm. Consequently, it is likely that these units would be covered by the Survey of

Consumer Finances, but not by the Survey of Consumer Expenditures. These farm operators are probably small urban dwellers, and their inclusion in the farm survey means they must be excluded from the income portion of the non-farm surveys. This we have already done. As a result, our consumption data cover: (1) all cities with a population in excess of 15,000; (2) all farm operator families; and (3) an unknown portion of small urban and rural families.

The data are not perfect; but until such time as more complete living expenditure surveys are carried out, they are the best we have with which to work.

The standard extrapolating procedure is used to convert 1959 data to 1961.

Line 12. The distribution of taxable consumption for the manufacturer's sales tax is derived as follows: A study for the Commission (M. Bourgeois, "Sources of Sales and Excise Tax Revenues,") estimated for the year 1960 the federal sales tax yield from the major domestic manufacturing industries, plus the yield on imported goods. We regrouped the sales tax yield by product classification (ibid., Tables 2, 8, 10, 23 and 26) into broad commodity groups.

Consequently, taxable foods, alcoholic beverages and tobacco, household operation commodities, furnishings and equipment, clothing, automobiles, medical care, personal care and producer's goods, accounted for: 3.3%, 9.2%, 5.9%, 8.9%, 15.4%, 17.9%, 1.2%, 0.5% and 37.6%, respectively, of total sales tax revenue. When these percentages are applied to the consumption distributions of their respective commodities (lines 1 through 11), the resulting sum is the distribution of taxable consumption. We assume that that portion of the manufacturer's sales tax yield which is obtained from producers' goods is shifted to consumers in proportion to their consumption of all goods, taxed and untaxed.

Line 13. The distribution of taxable consumption (for the provincial retail sales taxes) is the result of several arbitrary allocations necessitated by the varied nature of exemptions among provinces. Housing, furniture and appliances, and miscellaneous consumption expenditures are counted at 100%; clothing is included at 80%; transportation at 70%; personal care, alcoholic beverages and tobacco at 50%; and reading, education and recreation at 20%. It is hoped that these varying percentages of commodity groups allow for the exemptions and non-coverage of the provincial retail sales taxes.

When these percentages are applied to the respective consumption distributions, the result is the distribution of taxable consumption, the distribution of which appears in line 13.

TABLE A-3(a)

The tax and expenditure data are from: D.B.S., Financial Statistics of Federal, Provincial and Municipal Governments, 1961. The statistics for the federal and provincial governments are based on information obtained from the Public Accounts for the fiscal year ended March 31, 1962, while, for municipal governments, the data cover calendar year 1961. In all cases the accounts have been rendered as closely comparable as possible; in addition intergovernmental transfers have been netted out, and for the most part — for our purposes — tax revenues only have been included. These data also include the revenues from those trust accounts which are outside the Public Accounts; such as, the old age security fund and the unemployment insurance fund.

During 1961 the tax rental agreements between the federal and provincial governments resulted in the provinces receiving $88 million, $202 million and $14 million of the corporation income tax, the individual income tax and the federal estate taxes, respectively, for their 1961 share of these taxes. We have treated these taxes as provincial tax revenues and consequently they are subtracted from the federal, and added to the provincial, data.

The federal taxes shown here exclude all non-tax revenues. In addition, $112 million in tax revenue from interest, dividends and other income going abroad, is excluded; this part of the tax burden falls on non-residents and thus, is not considered to be a part of the Canadian tax burden. These items account for differences between our total tax revenue and the "total net general revenue" of $6,249 million, given in the original D.B.S. data.

The provincial taxes exclude all non-taxes such as sales, services, miscellaneous non-tax revenues, subsidies, equalization payments and stabilization payments, fishing licences, etc., (total, $356 million). The table also includes social insurance contributions of $193 million; these are the main differences between our total tax revenue of $2,688 million and the D.B.S. figure of $2,853 million.

On the local level, real property taxes include personal income taxes of $12 million. The other taxes which are included in other selective sales taxes are poll, amusement and admissions, land transfer, and several minor taxes. All non-tax revenues have been excluded from our figures. The social security contributions are from the National Accounts.

1/ The corporation income tax is from the National Accounts estimate which is on an accrual basis. In 1961 federal corporation income tax accruals were $1,320 million, from which a tax rental of $88 million was subtracted. In allowing for the tax rentals, we considered only the

tax rental payment which was specifically for the year 1961; adjustments which the Department of Finance carried out to allow for over- or under-payment in previous years were omitted, as they were not considered to be part of the 1961 tax burden.

In 1961 federal individual income taxes amounted to $2,052 million, from which a tax rental of $202 million was subtracted.

In 1961 federal estates taxes amounted to $85 million, from which a tax rental of $14 million was subtracted.

2/ Liquor tax revenues on the provincial level include liquor licence proceeds and liquor profits of $51 million and $195 million, respectively.

3/ Included with hospital insurance premiums is a minor amount ($11 million) of other miscellaneous provincial revenues.

4/ Natural resource revenues include ground rents and royalties for extraction of minerals and oil. The difference between our figure and the corresponding item in the D.B.S. Financial Statistics is accounted for by fishing and game licences and several miscellaneous items which we chose to exclude. Rents are $166 million, and royalties are $116 million.

5/ The federal social security contributions are for unemployment insurance and public service pensions (D.B.S. National Accounts, Income and Expenditure, 1961, op. cit.,) unemployment insurance contributions of $277 million are included in total; but only the employee share ($117 million) of total public service pensions ($233 million) is included, in order to avoid double counting.

Provincial social security taxes are for public service pensions, workmen's compensation and industrial employees' vacations, (D.B.S. National Accounts, Income and Expenditure, 1961), $116 million, $117 million and $18 million respectively. We include here only the employees' share of the public service pensions.

The local social security contributions are for public service pensions; only the employee share ($13 million) is included, the employer being the government.

6/ The bulk of municipal commodity taxes in 1961 were obtained from Quebec municipal sales taxes. In 1964 the right of Quebec municipalities to impose these sales taxes was repealed.

TABLE A-3(b)

This table is derived in the same manner as Table A-3(a), and the notes to that table are also applicable to Table A-3(b). Total tax payments in this Table, do not correspond with the total provided in Table A-3(a), column (4), due to the exclusion of social security contributions for which it was not possible to obtain a provincial distribution.

(1) Less than $.5 million.

(2) Included in the general sales tax.

(3) Included in the property tax.

TABLE A-4

The totals for lines 1 through 13 are from a detailed breakdown of Personal Income in 1961 (D.B.S., National Accounts, Income and Expenditure 1961) provided by D.B.S. Our family money income plus non-money additions, do not add up to the National Accounts personal income because of the exclusion of interest on consumer debt, grants to universities and private, non-commercial institutions, and charitable contributions from corporations and the inclusion of pension income. (Personal income in the National Accounts is $28,506 million.)

Line 1. The distribution of family money income is the sum of lines 2 through 8.

Line 2. Wages and salaries and supplementary labour income, less employer and employee contributions to social insurance and government pension funds, are distributed by the series, wages and salaries, line 1, Table A-1.

Line 3. Military pay and allowances (including income in kind) are distributed by the series, military pay and allowances, line 15, Table A-1.

Line 4. Net farm money income is distributed by the series, farm operator family income solely from farm operation, line 13, Table A-1.

Line 5. Net non-farm unincorporated business income is distributed by the same series, line 3, Table A-1.

Line 6. Investment income which includes interest received on bonds, savings accounts and mortgages, dividends, net cash rents and royalties, is distributed by the series, investment income, line 4, Table A-1.

Line 7. Pension income is distributed by line 8, Table A-1.

Upon completion of this Study, it was pointed out to the author that there was an apparent inconsistency in the treatment of private and public pensions in the estimation of the various income bases. While it is possible to eliminate the theoretical inconsistency without altering the empirical estimations of the total distribution of income, I did not consider it necessary to adjust the empirical estimates for the component parts. Consequently, it is desirable to discuss the internal adjustment that must be kept in mind.

Public pensions are treated in the following manner: (1) employee and employer contributions are subtracted from money income, and (2) pension payments are added to money income (by being included among government transfer payments) (line 8, this Table). In addition, the shifting assumption concerning social security taxes states that the entire employee share and one half the employer share is shifted backwards to the employees. This results in almost all of the pension contribution being added back to income as an adjustment to render the base consistent with the entire tax analysis (line 17, this Table).

Now, private pensions may be treated in the very same manner. That is, private contributions would be subtracted from money income and pension payments would be added back into money income. These private contributions operate similarly to a tax-transfer system in the private economy without a government intermediary, and this would result in the private tax (contribution) being shifted back to the employees. A correct adjustment would have to add this backward shifted private tax to the incomes of wage and salary earners. Assuming that the employer shifts his entire portion backward, then the adjustment (necessary to render the base consistent with the general tax methodology) would entail adding the entire backward-shifted private tax (contribution) to income. When this adjustment is combined with the original treatment the net result would become money income plus the pension payment.

Now, our actual treatment of pensions (line 7) is to record the addition of pension income to other income sources; consequently our actual treatment conforms with what we would desire in terms of a consistent treatment of private and public pensions. However, Table 4 does not include the internal adjustments that would exactly cancel out. In other words, line 1 should be smaller by the amount of private pension contributions, and line 17 should be larger by the amount of the backward-shifted portion of the private pension contributions (tax). Given the assumption of complete backward-shifting, these two amounts are equal, and, as a result, their omission has no effect on the two income bases, "broad income," and "adjusted broad income."

Line 8. Transfer payments are composed of: (i) family allowances of $517 million, distributed by line 5, Table A-1; (ii) old age security fund payments of $603 million, distributed by line 6, Table A-1; (iii) other transfers of $1,177 million, including veterans' pensions ($237 million), unemployment benefits ($494 million), workmen's compensation ($94 million), direct relief ($102 million), old age, blind, mothers' and disabled persons' pensions ($155 million) and miscellaneous of $95 million, distributed by line 7, Table A-1; (iv) payments to farmers of $35 million, distributed by line 13, Table A-1; and (v) pensions to government employees of $121 million, distributed by line 8, Table A-1.

Line 9. The total non-money additions is the sum of lines 10 through 13.

Line 10. Imputed interest is allocated by the series, liquid assets, line 16, Table A-1.

Line 11. Imputed net rental income is allocated by the series, estimated net rental value of owner-occupied homes, line 23, Table A-1.

Line 12. The investment income of life insurance companies (plus fraternal societies, industrial pension plans, mutual non-life insurance companies and government annuities fund), which is assumed to be imputed to the individual policyholder, is distributed by the series, insurance premiums paid, line 21, Table A-1.

Line 13. Food and fuel grown and consumed on the farm is assumed to be distributed proportionally to the farm population; this income in kind is allocated by the series, number of farm operators, line 11, Table A-1.

Line 14. The total adjustments to income is the sum of lines 15, 16 and 17.

Lines 15 and 16. Retained earnings and the unshifted portion of the corporate income tax are allocated by the series, dividends received, line 14, Table A-1, which is taken to reflect the distribution of corporate ownership. The standard shifting assumption was used (one half falling on corporate profits) with which to allocate $531 million by dividends received.

Line 17. With respect to the backward shifted portion of the social security contributions, $208 million is allocated by "covered" wages, line 2, Table A-1, while $289 million is allocated by wages and salaries, line 1, Table A-1.

Line 18. The basic income concept is obtained by summing lines 1, 9 and 14.

Line 19. Line 8, this table.

Line 20. The "broad income" concept is derived by subtracting line 19 from line 18.

Line 21. The distribution of total tax payments is from line 18, Table A-5.

Line 22. The distribution of government expenditures and transfer payments is from line 14, Table A-12 plus line 13, Table A-13. We have included the general expenditures distributed according to income; that is, by Assumption B.

Line 23. The distribution of the "adjusted broad income" concept is obtained by subtracting line 21 from line 20 and adding line 22 to the remainder.

Line 24. The distribution of all Canadian families is presented here as an approximate series, because no one source was available for non-farm, farm and military families. It is unfortunate that the census family does not coincide with the survey family; but the difference is such that it is unlikely that the percentage distribution of this series could be significantly altered by any reasonable error. First, 4,719 thousand non-farm families (and unattached individuals) are distributed by line 10, Table A-1 (derived from the 1961 Survey of Consumer Finances). Next, 378 thousand farm families (derived from the 1961 Census) are distributed by line 11, Table A-1 (derived from the 1958 Farm Survey). Finally, 120 thousand military families are distributed by data provided by the Department of National Defence. The total appears in line 24.

The 1961 Census gives a population of 18,238 thousand. When the number of families given here is multiplied times the average number of persons per family the population is estimated as 17,498. This discrepancy can probably be explained by the use of 1959 estimates for the average number of persons per family. This procedure was necessary because the estimates came from the family consumption surveys, the latest of which was carried out in 1959.

Line 25. The distribution of average per family income for the "broad income" base is obtained by dividing line 20 by line 24, of this Table.

Line 26. The distribution of average per family income for the "adjusted broad income" base is derived by dividing line 23 by line 24, of this Table. These average per family income estimates are used as mid-points for the charts found throughout this investigation.

TABLE A-5

The total tax payments are from Table A-3(a) except in those cases where part of the tax is assumed to be exported, such as, the corporation income tax and the property tax.

Line 1. The individual income tax is distributed by the series, personal income taxes, line 24, Table A-1.

Line 2. Our standard assumption assumes that half the corporation income tax is borne by the owners while half is shifted on through price increases. Of the share borne by shareholders, 34% is allocable to foreign shareholders and, therefore, excluded. $406 million and $505 million are allocated by dividends received, line 14, Table A-1, and total consumption, line 11, Table A-2.

Line 3. The general manufacturers' sales tax is allocated by taxable consumption; manufacturers' sales tax, line 12, Table A-2.

Line 4. Selective excises include: alcohol ($206 million), tobacco ($367 million), automobiles ($25 million) and other commodities ($25 million). The excise on automobiles is divided: (1) half to personal use (distributed by, "automobile purchases," line 31, Table A-1); and (2) half to business use (distributed by, "total consumption," line 11, Table A-2; 18% of these consumption based taxes are exported and therefore excluded from this study). The excises on alcohol and tobacco are allocated by line 9, Table A-2; while the excises on other commodities are allocated by, total consumption, line 11, Table A-2. The sum of these allocations appears in line 4.

Line 5. Import duties are allocated by total consumption, line 11, Table A-2.

Line 6. Estate duties are allocated entirely to the upper-income bracket.

Line 7. Social security contributions on the federal level include unemployment compensation and public pensions. $208 million, $69 million, and $117 million are allocated by "covered" wages, total consumption, and A-15 wages and salaries respectively, line 2, Table A-1, line 11, Table A-2, and line 1, Table A-1.

Lines 9 and 10 are distributed in the same manner as lines 1 and 2.

Line 11. Sales and excises include: the retail sales tax ($355 million), alcohol ($246 million), tobacco ($27 million), fuel and motor oil ($449 million), other sales taxes and miscellaneous municipal taxes ($137 million). Taxes on motor fuel are treated similarly to the tax on the federal level, and the remaining taxes are allocated by their respective series: retail sales tax, line 13, Table A-2; alcohol and tobacco, line 9, Table A-2; other sales taxes, line 11, Table A-2. The sum of these allocations is shown in line 11.

Line 12. Succession duties are allocated entirely to the upper-income bracket.

Line 13. Hospital insurance premiums are allocated by the series, hospital insurance premiums, line 30, Table A-1.

Line 14. The methodology behind the disaggregation of the property tax is outlined in the text. The following table summarizes the amounts of property tax allocable to various classifications:

Disaggregation	Amount Millions	Distributive Series	Source
Business:	1/		
land	$ 61	.Dividends received	Line 14, Table A-1
buildings	307 1/	.Total consumption	Line 11, Table A-2
Farm:			
land	94	.Estimated value of farm land and agricultural buildings	Line 27, Table A-1
buildings	31	.Food expenditures	Line 1, Table A-2
Residential Owner:			
urban	519 2/	.Estimated market value of owner-occupied homes	Line 22, Table A-1
rural	24	.Estimated value of farm operator homes	Line 28, Table A-1
Renter:			
land	53	.Net rental income	Line 26, Table A-1
buildings	211	.Rent payments	Line 25, Table A-1

1/ These amounts are the Canadian share only; excluded are the taxes assumed to be allocable to foreigners ($32 million for land, and $67 million for buildings).

2/ This item includes $8 million from the provincial property tax.

The Property Tax Disaggregation

The estimated value of the capital stock in business, farm and residential real estate is $25.9, $6.8 and $46.2 billion, respectively. The business estimate is derived from corporate data provided in Taxation Statistics, 1963, Section 2, Table 4 for the year 1961. This figure is the book value estimate of land and buildings, less depreciation; and, due to its limited coverage, may understate the actual amount. The value for land is 20% of the total.

The end effect is to allocate 33% of the real property tax yield to business property. This result approximates the results of the only study which gives any indication at all of the share of business property taxes in total property taxes, for ten Canadian cities: Canadian Tax Foundation, Tax Memo, No. 24, October 1960, Toronto, Canada.

The farm estimate is from the 1958 Farm Survey (Report No. 1), pp.22-23, where the estimated capital value of land and improvements is $5,114 and $1,668 million respectively. The value of farm homes is included in the estimate of residential real estate.

The residential real estate estimate is from unpublished data provided by the Central Mortgage and Housing Corporation solely for the value of homes——$37.0 billion. We assumed that the value of land is 20% of the total and estimated a total residential capital stock of $46.2 billion.

We allocated 67% of the property tax yield from residential real estate to owner-occupied homes. From the 1961 Survey of Consumer Finances we know that 64.4% of the owner-renter family and unattached individuals were home-owners; from the 1958 Farm Survey (Schedule A) we know that 91.6% of farm operators were home-owners. When these ratios are applied to urban and rural residential capital estimates (CMHC data) the weighted average of owner-occupied homes is 67.3%. We assumed 67% of the value of all homes is accounted for by the value of owner-occupied homes.

Line 15. Other taxes include: motor vehicle licences ($166 million), natural resource revenues ($205 million), life insurance premium taxes ($34 million) and municipal business taxes ($37 million). Motor vehicle licences are treated similarly to the other taxes on automobiles and fuel oil (lines 4 and 11). With respect to natural resource revenues, after allowance was made for the share of the tax borne by foreigners (share-holders and other factor income recipients), $110 million and $95 million were allocated by dividends received, and total consumption respectively, line 14, Table A-1, and line 11, Table A-2.

Life insurance premiums are allocated by line 21, Table A-1; and municipal business taxes are allocated by line 11, Table A-2.

Line 16. Social security contributions on the provincial and local level include: public service pensions, workmen's compensation and industrial employees' vacation plans. $172 million and $34 million are distributed by wages and salaries, line 1, Table A-1, and total consumption, line 11, Table A-2, respectively.

TABLE A-6

The effective tax rates in this Table are derived by expressing the distributions of tax payments, Table A-5, as a percentage of the "broad income" concept, line 20, Table A-4.

TABLE A-7

The effective tax rates in this Table are derived by expressing the distributions of tax payments, Table A-5, as a percentage of the "adjusted broad income" concept, line 23, Table A-4.

TABLE A-8(a)

Table A-8(a) is derived from line 18, Table A-5, to which the necessary adjustments are made to allow for various alternate assumptions about the shifting of the corporate profits tax, sales and excise taxes and the property tax. In the following description the relevant series only is described.

Line 1. A assumes that the corporate profits tax falls entirely on profits, and consequently $1,064 million (the remainder of the corporate profits tax is exported to foreigners) is allocated by the distribution of dividends received, line 14, Table A-1.

Line 2. B assumes that one third of the corporate profits tax is shifted to consumers, and consequently $440 million and $708 million are allocated respectively by the distributions of total consumption (line 11, Table A-2), and dividends received (line 14, Table A-1).

Line 3. C assumes that one hundred per cent of the corporate profits tax is shifted to consumers; consequently, $1,320 million (the remainder is exported to foreign consumers) is allocated by the distribution of total consumption, line 11, Table A-2.

Line 4. A assumes that one third of all sales and excise taxes is shifted to factors; consequently, $880 million is allocated by the distribution of factor incomes, line 29, Table A-1. The remaining two thirds are allocated by the distributive series for each taxed article (a general description is included in the notes to Table A-5).

Line 5. B assumes that two thirds of all sales and excise taxes are shifted to factors; consequently, $1,764 million is allocated by the distribution of factor incomes, line 29, Table A-1. The remaining third is allocated by the distributive series for each taxed article.

Line 6. C assumes all sales and excise taxes are shifted to factors; consequently, $2,642 million is allocated by the distribution of factor incomes, line 29, Table A-1. With respect to lines 4 through 6 any exported portions are specifically allowed for.

Line 7. A assumes that the property tax yield from renter-occupied housing units falls entirely on the landlord; consequently, $211 million is allocated by a distribution of rental income, line 26, Table A-1.

Line 8. B assumes that one-half of the tax is shifted to the tenant while the remainder falls on the landlord; consequently $106 million and $105 million are allocated respectively by distributions of rent payments and rental income, lines 25 and 26, Table A-1.

TABLE A-8(b)

This table presents the income bases that must be used when the various alternate assumptions with respect to the corporate profits and the sales tax are made. For example, the corporate profits tax adjustment: assumption A, treats the entire tax as falling on profits. Consequently the tax must be allocated to dividend recipients as part of their potential income base; $1,064 million is allocated to income by a distribution of dividends received. A comparable adjustment is made for each assumption.

TABLE A-9

The distributions of effective tax rates for various alternative shifting assumptions with respect to the corporate income tax, sales and excises, and the property tax is obtained by expressing: (i) lines 1 through 3, Table A-8(a), as a percentage of lines 1 through 3, Table A-8(b), respectively; (ii) lines 4 through 6, Table A-8(a), as a percentage of lines 4 through 6, Table A-8(b), respectively; and (iii) lines 7 and 8, Table A-8(a), as a percentage of line 20, Table A-4. These schedules are all based on the "broad income" base.

Line 9. A Hypothetical Individual Income Tax.——There is some doubt as to the accuracy of the distributive series which is used here to allocate the individual income tax. While it is to be expected that all legal methods of escaping high marginal tax rates would be employed, one would hardly expect an "effective" tax rate of only 12% for the upper income bracket. The underlying distribution (from the 1960 Survey of Consumer Expenditures) indicates that 29.4% of expenditures on the income tax are paid by the upper bracket families. We suspect that this figure understates the share of upper bracket families in the individual income tax.

In the first place, Taxation Statistics (for the year 1961) indicates that 31% of the income tax came from upper bracket individual income tax

returns. Taxation Statistics classifies by individual returns; therefore, it is to be expected that a smaller amount of income tax will be paid by upper bracket returns than by upper bracket families (we did not use Taxation Statistics for this very reason), due to multiple income-earner families. Consequently, one would expect the distributive series based on family data to allocate a share greater than 31 per cent to upper bracket families.

How much greater is a matter of conjecture. The individual income tax in the United States allocates approximately 57% of the total to the upper bracket families (see Public Expenditures, Appendix Table on Distributive Series, Table I. A-1, line 15).

Secondly, the 1960 Survey of Consumer Expenditures does understate the amount of the individual income tax in comparison with the National Accounts. After allowance is made for an estimated farm portion, the understatement amounts to $482 million. Now, if it can be assumed that this understatement is entirely allocable to the upper bracket then our adjusted distributive series becomes: 0.4%, 1.1%, 3.3%, 6.6%, 19.9%, 18.8%, and 49.9% by increasing income brackets. This hypothetical individual income tax series effects the following hypothetical distribution of "effective" individual income tax rates (for the combined federal and provincial tax): 1.0%, 1.4%, 2.7%, 3.7%, 5.9%, 7.3% and 20.4% by increasing income brackets.

As was to be expected, this adjustment renders the upper income bracket rate much more progressive. Our assumption is restrictive in that the total understatement is allocable to the upper income bracket. It is unlikely that this is so; consequently, the hypothetical individual income tax adjustment becomes an upper limit, while the standard pattern of tax incidence becomes a lower limit to the "true" incidence of this tax.

Line 10. The Inclusion of a Hypothetical Capital Gains Component in the Income Base.——The real income position of an individual is improved by the inclusion of income that he receives in the form of capital gains from the sale of assets. Unfortunately, the current income concept employed in this study includes no estimate of capital gains income. As mentioned in the introduction, the lack of data on the amount, much less the distribution of such income, made it impossible to treat it in the main study.

However, given the probable importance of capital gains for upper income recipients, it was thought desirable to estimate, in a purely hypothetical situation, the effect of such income in reducing the progressivity of the tax structure over the upper income brackets. The point of departure is data for the United States. During 1960, the rate of capital gains from the sale of assets as a percentage of corporation profits was 23 per cent; retained earnings as a percentage of corporation profits was 17 per cent. (Public Expenditures, Table I.A-4, pp. 44-45 and p. 64; long-term capital gains were included at 100 per cent.) In addition, the distribution of capital gains income was similar to the distribution of dividends received.

On the Canadian scene the rate of retained earnings as a percentage of corporation profits was approximately comparable (at 23 per cent), which indicates some comparability between the two countries. For our hypothetical situation we assume: (1) the Canadian rate of capital gains is similar to the U. S. rate; (2) capital gains income is distributed the same as dividends received; (3) 34 per cent of capital gains income accrues to foreigners. These assumptions result in imputing $515 million in capital gains income by an allocation of dividends received. When the resulting distribution of income (which now includes capital gains income) is used for the standard case, the new schedule of rates is shown in line 10, Table A-9, for the "broad income base."

TABLE A-10

The distributions of effective tax rates for various alternative shifting assumptions with respect to the corporate profits tax, sales and excises, and the property tax is derived by expressing: (i) lines 1 through 3, Table A-8(a), as a percentage of lines 7 through 9, Table A-8(b) respectively; (ii) lines 4 through 6, Table A-8(a) as a percentage of lines 10 through 12, Table A-8(b), respectively; and (iii) lines 7 and 8, Table A-8(a), as a percentage of line 23, Table A-4. These schedules are all based on the "adjusted broad income" base.

TABLE A-11(a)

Table A-11(a) is derived from data provided by D.B.S.: Financial Statistics of the Government of Canada, the Provincial Governments and the Municipal Governments, 1961. This Table differs from the official published sources in several distinct ways: (1) intergovernmental transfers are not included; (2) expenditures made out of the Unemployment Insurance Fund and several other governmental trust funds——which are usually classified as non-budgetary or extra-budgetary expenditures——are included (we also included the tax payments or contributions into such accounts on the tax side of the question); (3) the expenditures by function are regrouped to suit our own purpose and in the case of social welfare transfers, to correspond with the available distributive series; and (4) for some of the detailed expenditure data accompanying the discussion of each expenditure, use was made of the National Accounts statistics on transfer payments. These same comments apply to the table on provincial and local statistics by province.

1/ Includes expenditure on air, rail and water transport, and communications.

2/ Includes expenditures on (1) general health, (2) public health, and (3) medical and dental care.

3/ Includes unemployment insurance benefits, and expenditures of the National Employment Service.

4/ Includes transfers for (1) mothers' allowances, (2) child welfare, (3) pensions for the blind, and (4) direct relief, etc.

5/ Includes: (1) the Post Office deficit ($1 million), and expenditures on (2) recreation and cultural services ($146 million), (3) international co-operation and assistance ($67 million), (4) civil defence ($24 million) (5) trade and industrial development ($30 million), (6) the national capital planning development ($25 million), (7) administration of the public debt ($42 million), (8) Citizenship and Immigration ($16 million), (9) housing research and slum clearance ($12 million), (10) Royal Canadian Mint ($2 million), (11) External Affairs ($20 million), (12) winter works projects ($11 million), and (13) miscellaneous expenditures ($255 million).

6/ The total expenditure item given in Table A-11(a) is easily reconciled with the official published Financial Statistics of D.B.S. Net federal government expenditures published in the data source are $7,023 million. Payments to other governments ($567 million), Post Office expenditures ($214 million), communications expenditures ($36 million) and the loss on foreign exchange (-$2 million) are deducted. Government pensions ($67 million) and unemployment insurance benefits ($439 million—net of the share already included in the official source) from the National Accounts are added. The result is the total of Table A-11(a), $6,714 million.

Net provincial government expenditures published in the data source are $3,106 million. Unconditional grants to other governments and non-expense items of $70 million are deducted. Government pensions ($45 million) and workmen's compensation benefits ($94 million) from the National Accounts are added. The result is the total of Table A-11(a), $3,168 million.

Net municipal government expenditures published in the official data source are $2,243 million. Government pensions ($9 million) are added, and the result is the total of Table A-11(a), $2,252 million

TABLE A-11(b)

Table A-11(b) is obtained at least in part from Table A-11(a). The D.B.S. provided data from the National Accounts on the amount of transfer payments that were paid out in connection with the various public expenditures on social welfare and veterans. The difference between this item and the corresponding total expenditure from Table A-11(a)—derived from Financial Statistics, op. cit., —is taken to be the administrative expense or that portion of expenditure made on goods and services (such as free medical services for veterans).

1/ The item for Old Age Assistance Pensions paid by provincial governments is from Financial Statistics.

2/ The items for pensions to government employees and workmen's compensation payments do not appear in Financial Statistics. It is assumed that the transfer payments given in the National Accounts are the same for both sources.

3/ For unemployment service benefits the goods and services component of the public expenditure comes from Financial Statistics, which includes the government's share of the programme, while the transfer portion comes from the National Accounts. The figures have been adjusted so as to avoid double counting of the government's share. In Financial Statistics the government's share of contributions is 20%; during 1961 employer and employee contributions amounted to $277 million and thus the government's share would amount to $55 million. This $55 million share is not to be confused with the government's contribution to the unemployment insurance deficit which arises when benefit payments exceed contributions. Consequently, the item for goods and services expenditures on unemployment insurance ($108 million) is reduced by $55 million to result in a net public expenditure of $53 million.

TABLE A-11(c)

Table A-11(c) is derived in the same manner as Table A-11(a) with respect to the functional breakdown of expenditure at the provincial and municipal levels. Municipal and provincial expenditures are added together in this case. The discrepancy in the total for the two tables is explained by those transfer payments (mainly government pensions and some miscellaneous items, not accounted for) which were interpolated from the National Accounts. The difference is small and unlikely to affect the percentage distributions of public expenditures by province.

1/ Less than $500,000.

2/ The total derived from Financial Statistics, $5,273 million does not correspond to the detailed total of $5,260 million due to rounding. For each expenditure item the details may not add to the total due to rounding.

3/ The municipal portion of $79 million does not include debt charges.

4/ The municipal portion of $14 million includes the interest portion of debt charges on debentures issued by municipalities on behalf of schools.

5/ The municipal portion includes $79 million for unclassified capital expenditures.

TABLE A-11(f)

The distribution of federal interest payments by ownership of the federal debt is derived from text Table 3.5 (and appears in the last column of this Table). The standard assumption allocates all such interest payments to the owners of the debt. The alternate assumption allocates some interest payments (on debt held by chartered banks, other insurance companies and corporations) to customers.

Line 1. Interest payments on the federal debt held by the chartered banks are allocated to the owners by the distribution of dividends received, line 14, Table A-1.

Lines 2 and 3. Sixty-five per cent of all insurance business is carried on by mutual companies (Report of the Royal Commission on Banking and Finance, Queen's Printer and Controller of Stationery, Ottawa, Canada, Canada, 1964, p. 240). This ratio was used to divide federal interest payments between mutual and other life insurance companies. Since the owners of mutual life insurance companies are the insured persons, interest payments on the federal debt held by mutual insurance companies are allocated by a distribution of the value of life insurance premiums paid, line 21, Table A-1. Interest payments on the federal debt held by other insurance companies are allocated to the owners by a distribution of dividends received, line 14, Table A-1.

Line 4. Interest payments on the federal debt held by mutual savings banks are allocated by a distribution of savings deposits, line 18, Table A-1.

Line 5. Interest payments on the federal debt held by corporations are allocated to the owners by a distribution of dividends received, line 14, Table A-1.

Lines 6 and 7. Interest payments on the federal debt held by individuals are allocated to the individuals: Canada Savings Bonds are allocated by a distribution of the value of Canada Savings Bonds, line 20, Table A-1, and other market securities are allocated by a distribution of liquid assets, line 16, Table A-1.

Line 8. Sum, lines 1 through 7.

Line 9. The percentage distribution of line 8.

Line 10. The sum of lines 2, 4, 6 and 7. In addition, interest payments on the federal debt held by (a) chartered banks, (b) corporations and (c) other insurance companies are allocated to the customers and

distributed respectively by: (a + b) total consumption, line 11, Table A-2, and (c) the value of insurance premiums paid, line 21, Table A-1.

It might be noted that when some interest payments on the public debt are assumed to be shifted to the customers of certain financial institutions, the distribution of total interest payments becomes more heavily weighted toward the lower income brackets. This is to be expected as the distribution of customers——measured by savings accounts - is much more equal than the distribution of owners——measured by dividends received.

TABLE A-11(g)

The distribution of provincial and municipal interest payments by ownership of the debt is derived from Table A-11(e). The percentage distribution, appearing in the last column of Table A-11(e), is applied to total provincial and municipal interest payments of $184 million (Table A-11(a)) to effect the totals in the last column of Table A-11(g). (Some interest payments are excluded: see text for specific details).

The distribution by income class is estimated in the same manner as Table A-11(f), and it is unnecessary to repeat the same steps here.

TABLE A-12

The distribution by income class of all federal expenditures is obtained by allocating the totals, given in Table A-11(a) (after any share which is assumed to be exported to non-residents is deducted) by the assumptions found throughout the text.

Line 1. It is assumed that 25 per cent of all highway expenditures are incurred on behalf of property owners; consequently, $22 million is allocated to property owners by a distribution of property value, line 37, Table A-1. The remaining highway expenditures are incurred on behalf of highway users; and $38 million is allocated to consumers of passenger travel by a distribution of consumer expenditures on the operation of an automobile, line 32, Table A-1, while $24 million is allocated to consumers of transported products by a distribution of consumer expenditures on transported products, line 38, Table A-1. The total appears in line 1, this Table.

Line 2. "Other" transportation expenditures are divided into a consumer and freight portion. $155 million is allocated to consumers of "other" passenger travel by a distribution of consumption expenditures on "other" transportation, line 39, Table A-1; and $156 million is allocated to consumers of transported products by a distribution of consumer expenditures on transported products, line 38, Table A-1. The sum appears in line 2, this Table. Provincial expenditures of $5 million have been included in the federal total.

Line 3. It is assumed that the cost of education expenditures is incurred on behalf of the students concerned; consequently, expenditures of $38 million on the elementary and secondary levels are allocated by a distribution of all children under 16, line 35, Table A-1, while expenditures of $55 million on the higher education level are allocated by an estimated distribution of university students, line 36, Table A-1. The sum of these allocations appears in line 3, this Table.

Line 4. It is assumed that the cost of providing public health services is incurred on behalf of all individuals who now receive or who are potential receivers of hospital care, public health care, etc. General public health expenditures of $49 million are allocated by a distribution of all families and unattached individuals, given in line 40, Table A-1; and expenditures on hospital care of $317 million are allocated by a distribution of hospital care benefits (potential) given in line 41, Table A-1. The sum appears in line 4, this Table.

Line 5. Public expenditures on agriculture are divided into three distinct groups: (1) administrative and other farm service expenditures, (2) expenditures on production and marketing services, and (3) price support and related payments. Administrative and other farm service expenditures of $59 million are allocated by the number of farm operators, line 11, Table A-1. Production and marketing services of $74 million and price support and related payments of $162 million are both allocated proportional to farm income by a distribution of farm operator family income solely from the operation of a farm, given in line 13, Table A-1. The sum total appears in line 5, this Table.

Line 6. Public expenditures on social welfare and veterans are divided into four distinct categories: (1) family allowances, (2) old age security payments, (3) government pensions, and (4) other transfers. Family allowance payments of $524 million are allocated by a distribution of the value of family allowance payments, line 5, Table A-1. Old age security fund payments of $656 million are allocated by a distribution of the value of old age security fund payments, given in line 6, Table A-1. Government pensions of $67 million are allocated by a distribution of pensions and annuities, line 8, Table A-1.

Other public expenditures on welfare and veterans include a transfer component and a goods and services component for veterans' allowances and benefits, unemployment insurance, and several miscellaneous programmes. The transfer component of $760 million for veterans' allowances, unemployment insurance benefits and miscellaneous transfers (such as, direct welfare) is distributed by the series, other transfer payments, line 7, Table A-1. The goods and services component is subdivided into two parts: (1) expenditures incurred on behalf of veterans ($100 million) are allocated to veterans by an estimated distribution of veterans, line 43, Table A-1; and (2) expenditures incurred in connection with the National Employment Service ($159 million) are allocated to labour by a distribution of wages and salaries, line 1, Table A-1. The distribution of "other" public expenditures on welfare and veterans is by increasing income class: $221 million, $188 million, $127 million, $130 million, $181 million, $121 million and $52 million. The sum total of all four allocations is given in line 6, this Table.

Line 7. The distribution of interest payments on the federal public debt is obtained from line 8, Table A-11(f). Interest payments are included for the standard assumption; that is, they accrue to the owners of financial institutions.

Line 8. The distribution of all expenditures except "general" is the sum of lines 1 through 7.

Line 9. Assumption A assumes that the benefits from general expenditures accrue equally to all families and unattached individuals; consequently general expenditures of $2,646 million are allocated by a distribution of all families and unattached individuals, line 40, Table A-1.

Line 10. Assumption B assumes that the benefits from general expenditures accrue in proportion to total income (where the "broad" income concept is employed), and consequently general expenditures are allocated by the distribution of income, given in line 44, Table A-1 which is, of course, derived from Table A-4, line 20.

Line 11. Assumption C assumes that the benefits from general expenditures (after $900 million is attributed to foreign capital) accrue in proportion to capital income alone, and consequently, $1,746 million is allocated by a distribution of investment income, line 4, Table A-1.

Line 12. Assumption D assumes that the benefits from general expenditures accrue in proportion to disposable income, and consequently $2,646 million is allocated by the series, disposable income, line 45, Table A-1.

Lines 13 through 16. The distribution of total federal expenditures, lines 13 through 16, is obtained by summing line 8 and lines 9 through 12, respectively.

TABLE A-13

Line 1. It is assumed that 25 per cent of all highway expenditures are incurred on behalf of property owners; consequently $252 million is allocated to property owners by a distribution of property value, line 37, Table A-1. The highway-user share of these expenditures is incurred on behalf of cars and trucks. $404 million is allocated to consumers of passenger travel by a distribution of consumer expenditures on the operation of an automobile, line 32, Table A-1; and $260 million is allocated to consumers of transported products by a distribution of consumer expenditures on transported products, line 38, Table A-1. The sum total appears in line 1, this Table.

Line 2. It is assumed that the cost of education expenditures is incurred on behalf of the students concerned; consequently, elementary and secondary education expenditures of $1,527 million are allocated to elementary and secondary students by a distribution of all children under 16 years, line 35, Table A-1. Public expenditures on higher education of $200 million are allocated to university and college students, by an estimated distribution of university students, line 36, Table A-1. The sum of these allocations is shown in line 2, this Table.

Line 3. Government expenditures on public health and sanitation can be divided into three separate groups: (1) general expenditures on public health, (2) hospital care expenditures, and (3) sanitation expenditures. It is assumed that general public health expenditures are incurred on behalf of all families and unattached individuals and consequently, $124 million is allocated to all families by a distribution of all families and unattached individuals, line 40, Table A-1. It is also assumed that hospital care expenditures of $543 million can be allocated by a distribution of hospital care benefits (potential), line 41, Table A-1.

Public expenditures on sanitation are divided into a commercial and residential share, given the proportion of the value of business property to the value of total (business plus residential) property. In other words, 33% or $49 million is allocated to business——and ultimately to consumers——by a distribution of total consumption, line 11, Table A-2. $120 million is allocated to residential housing units by a distribution of the weighted average of owner-occupied and renter-occupied housing units, line 42, Table A-1. The sum of these allocations is given in line 3, this Table.

Line 4. Provincial and municipal expenditures on agriculture are mainly administrative and other farm service expenditures. $77 million, consequently, is distributed by the number of farm operators, line 11, Table A-1.

Line 5. Considerable disaggregation of public expenditures on welfare and veterans is necessary. Old age security payments of $65 million are allocated by a distribution of the value of old age security fund payments, line 6, Table A-1. Government pensions of $54 million are allocated by a distribution of pensions and annuities, line 8, Table A-1. "Other" public expenditures of $354 million are allocated in the following manner: first, miscellaneous transfers (mothers and child welfare payments, direct relief, etc.) of $236 million are allocated by other transfer payments, line 7, Table A-1. Secondly, the goods and services component of employment service expenditures ($101 million) is allocated to labour by a distribution of wages and salaries, line 1, Table A-1. Finally, the goods and services component of miscellaneous expenditures ($8 million) is allocated by a distribution of other transfers, line 7, Table A-1. The sum of all these allocations is given in line 5, this Table.

Line 6. The distribution of interest payments on the provincial and municipal public debt is obtained from line 6, Table A-11(g). Interest payments are included for the standard assumption; that is, they are assumed to accrue to the owners of financial institutions.

Line 7. The distribution of all expenditures except "general" is the sum of lines 1 through 6.

Line 8. Assumption A assumes that the benefits from general expenditures accrue equally to all families and unattached individuals; as a result, general, non-allocable expenditures of $1,144 million are allocated by a distribution of all families and unattached individuals, line 40, Table A-1.

Line 9. Assumption B assumes that the benefits from general expenditures accrue in proportion to total income ("broad" income); consequently, these general expenditures are allocated by the distribution of income, line 44, Table A-1 (derived from line 20, Table A-4).

Line 10. Assumption C assumes that the benefits from general expenditures accrue in proportion to capital income alone, and $755 million is allocated by a distribution of investment income, line 4, Table A-1.

Line 11. Assumption D assumes that the benefits from general, non-allocable expenditures accrue in proportion to disposable income, and, consequently, $1,144 million is allocated by the series, disposable income, line 45, Table A-1.

Lines 12 through 15. The distribution of total provincial and municipal expenditures, lines 12 through 15, is obtained by summing line 7 and lines 8 through 11, respectively.

TABLE A-14

The schedule of effective expenditure rates for all federal expenditures set forth in Table A-14 is obtained by expressing the distribution of all federal expenditures, Table A-12, as a percentage of the "broad income" concept, line 20, Table A-4.

TABLE A-15

The schedule of effective expenditure rates for all provincial and municipal expenditures set forth in Table A-15 is obtained by expressing the distribution of all provincial and municipal expenditures, Table A-13,

as a percentage of the "broad income" concept, line 20, Table A-4.

TABLE A-16

In order to determine the incidence of public expenditures for "general" expenditure assumption A, C and D using the "adjusted broad income" base, it is necessary to make an alteration in the series given in Table A-4, line 23. There, it was assumed that public expenditures were incorporated into the income base for assumption B. Now, however, to determine the incidence of public expenditures for assumption A, it is necessary to include public expenditures in the income base for assumption A. When this is done the appropriate "adjusted broad (A) income" base becomes, by increasing income brackets: $2,432 million, $2,485 million, $3,291 million, $4,339 million, $7,438 million, $5,180 million, $4,191 million for a total of $29,355 million.

The schedule of effective expenditure rates set forth in Table A-16 is obtained by expressing the distribution of all expenditures, Tables A-12 and A-13, as a percentage of the "adjusted broad (A) income" base given above.

TABLE A-17

The schedule of effective expenditure rates set forth in Table A-17 is obtained by expressing the distribution of all expenditures, Tables A-12 and A-13, as a percentage of the "adjusted broad income" base used to represent the standard case, line 23, Table A-4.

TABLE A-18

To determine the incidence of public expenditure for assumption C, it is necessary to include public expenditures for assumption C in the income base. When this is done the appropriate "adjusted broad (C) income" base becomes, by increasing income brackets: $1,779 million, $2,198 million, $2,961 million, $4,025 million, $7,014 million, $5,057 million, $5,032 million for a total of $28,066 million. The schedule of effective expenditure rates presented in Table A-18 is obtained by expressing the distribution of all expenditures, Tables A-12 and A-13, as a percentage of this "adjusted broad (C) income" base.

TABLE A-19

To determine the incidence of public expenditures for assumption D, it is necessary to include public expenditures for assumption D in the income base. When this is done the appropriate "adjusted broad (D) income" base becomes, by increasing income brackets: $1,678 million, $2,258 million

$3,167 million, $4,370 million, $7,680 million, $5,520 million, $4,689 million for a total of $29,355 million. The schedule of effective expenditure rates presented in Table A-19 is obtained by expressing the distribution of all expenditures, Tables A-12 and A-13, as a percentage of this "adjusted broad (D) income" base.

TABLE A-20

Table A-20 is derived by subtracting the distribution of tax payments, lines 8 and 17, Table A-5, from the distribution of the cost of providing government expenditures, lines 13 through 16, Table A-12 and lines 12 through 15, Table A-13, respectively.

TABLE A-21

Table A-21 is obtained by expressing each distribution of the net fiscal amount, given in Table A-20, as a percentage of the "broad income" base, line 20, Table A-4.

TABLE A-22

Lines 1, 2 and 3. The pattern of net fiscal incidence for assumption A is obtained by expressing lines 1, 2 and 3, Table A-20 as a percentage of the "adjusted broad (A) income" base set forth in the notes to Table A-16.

Lines 4, 5 and 6. The pattern of net fiscal incidence for assumption B is obtained by expressing lines 4, 5 and 6, Table A-20 as a percentage of the standard "adjusted broad income" concept presented in Table A-4, line 23.

Lines 7, 8 and 9. The pattern of net fiscal incidence for assumption C is obtained by expressing lines 7, 8 and 9, Table A-20 as a percentage of the "adjusted broad (C) income" base, set forth in the notes to Table A-18.

Lines 10, 11 and 12. The pattern of net fiscal incidence for assumption D is obtained by expressing lines 10, 11 and 12, Table A-20 as a percentage of the "adjusted broad (D) income" base, set forth in the notes to Table A-19.

TABLE A-23

Table A-23 estimates the net fiscal incidence for an hypothetical elimination of the public sector deficit. The results are presented

here for "general" expenditure assumption B only; however, the empirical results for the other assumptions are not significantly different.

Line 1. The federal deficit of $1,078 million is distributed similar to the total federal tax burden, line 8, Table A-5.

Line 2. The provincial and local deficit of $1,364 million is distributed similar to the total provincial and local tax burden, line 17, Table A-5.

Line 3. Sum of lines 1 and 2, this Table.

Lines 4, 5 and 6. The distribution of the net fiscal amount after the hypothetical elimination of the deficit is obtained by subtracting lines 1, 2 and 3, this Table, from lines 4, 5 and 6, Table A-20.

Lines 7, 8 and 9. The distribution of net fiscal incidence after the hypothetical elimination of the deficit for the "broad income" concept is obtained by expressing lines 4, 5 and 6, this Table, as a percentage of "broad income," line 20, Table A-4.

Lines 10, 11 and 12. The distribution of net fiscal incidence after the hypothetical elimination of the deficit for the "adjusted broad income" concept, is obtained by expressing lines 4, 5 and 6, this Table, as a percentage of "adjusted broad income," line 23, Table A-4.

TABLE A-24

Line 1. The distribution of total tax incidence for all levels of government is obtained from Table A-6, line 18.

Line 2. Case I assumes that there could be an error of 10 per cent in either direction associated with the total tax incidence schedule. Consequently each item in line 1 is multiplied by 10.

Line 3. The upper limit of confidence is derived by adding lines 1 and 2, this Table.

Line 4. The lower limit of confidence is derived by subtracting line 2 from line 1.

Line 5. The distribution of total expenditure incidence for all levels of government is obtained from Tables A-14 and A-15, line 14 plus line 13 respectively.

Line 6. Case I further assumes that there could be an error of 20 per cent in either direction associated with the total expenditure incidence schedule. Consequently, each item in line 5 is multiplied by 20.

Line 7. The upper limit of confidence is derived by adding lines 5 and 6, this Table.

Line 8. The lower limit of confidence is derived by subtracting line 6 from line 5, this Table.

Line 9. The distribution of the net fiscal incidence pattern for all levels of government is obtained from Table A-21, line 6.

Line 10. The upper limit of confidence for the net fiscal incidence is obtained by subtracting the upper limit for the tax pattern from the upper limit for the expenditure pattern (line 7 - line 3).

Line 11. The lower limit of confidence for the net fiscal incidence is obtained by subtracting the lower limit for the tax pattern from the lower limit for the expenditure pattern (line 8 - line 4).

Line 12. Case II assumes that there could be an error of 20 per cent in either direction associated with the total tax incidence schedule. Consequently each item in line 1 is multiplied by 20.

Line 13. The upper limit of confidence is derived by adding lines 1 and 12, this Table.

Line 14. The lower limit of confidence is derived by subtracting line 12 from line 1, this Table.

Line 15. Case II further assumes that there could be an error of 30 per cent in either direction associated with the total expenditure schedule. Consequently each item in line 5 is multiplied by 30.

Line 16. The upper limit of confidence is derived by adding lines 5 and 15, this Table.

Line 17. The lower limit of confidence is derived by subtracting line 15 from line 5, this Table.

Line 18. The upper limit of confidence for the net fiscal incidence is obtained by subtracting line 13 from line 16, this Table.

Line 19. The lower limit of confidence for the net fiscal incidence is obtained by subtracting line 14 from line 17, this Table.

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