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The Effects of Income Taxation on Work Choices

by

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THE EFFECTS OF INCOME TAXATION ON WORK CHOICES

INTRODUCTION

Disincentive Effects of the Income Tax

One of the most frequently repeated criticisms of the personal income tax is that it acts as a deterrent to productive effort. It is said that since the tax confiscates some of the reward for extra effort, the rational person will not work so hard. It is also said that it is not only the total supply of effort which is harmed by income taxation. The distribution of effort is also held to be affected in an undesirable way. The tax renders highly paid occupations less attractive, and hence there are fewer members of the labour force engaged in those pursuits which do most to promote the buoyancy and growth of the economy. Some examples of these opinions, as put forward recently in the Canadian press, are quoted below:

For the individual, taxation is a deterrent to higher earnings. 1/

Income taxes simply cannot yield the vast sums needed by modern governments without seriously crippling human incentive. 2/

The present high personal and corporate income tax rates discourage initiative and sales.... 3/

A reduction in personal income taxes would provide an incentive to individual effort - who would say that more take-home pay would not be stimulating? 4/

For the individual, there is the problem of seeing increased earnings eaten up by taxation and the resulting tendency to dull energy and ambition. 5/

The disincentive effects of income taxation are cited in support of several important policy proposals. It is said that an expansion of the public sector, aimed at satisfying demands for public services which are presently in short supply, must be viewed with suspicion. More public services would imply a reduction in total output, at least to the extent that the expansion of the public sector were financed through a revenue structure based on an income tax which discouraged work effort. Also, we can note that the recent proposals in Canada and elsewhere which have urged greater reliance on indirect taxation have invariably cited the incentive problem in explaining their opposition to the income tax.

Social Losses Arising From Disincentive Effects

Before we proceed to answer the question of whether in fact the income tax deters work effort, we must first answer the more fundamental question of why any tax-induced reduction of work effort should be regarded as a matter for concern. It may be thought that the reasons for deploring any reduction in effort are perfectly obvious, but a moment's reflection will show that the matter is not so simple. When an individual decides to work less as a result of high tax rates, it is clear that he himself loses some income, but at the same time he gains in terms of leisure. Similarly, for the rest of the community his decision brings both a loss and a gain. There is a loss because the individual has reduced his contribution to total output; there is a gain because the individual's claims on that output are also reduced.

However, it is evident that when income taxes are in force the community's loss will exceed its gain. The value of the lost contribution to output, as measured presumably by the before-tax wage which would have

Incentive effect

been paid to the individual, will exceed the value of the lost claim on output, as measured by the after-tax wage which the individual would have received. The net loss to the community when the individual decides to reduce work effort is the difference between these two amounts and is, therefore, equal to the loss of tax revenue which his decision entails. The community must, in consequence, either reduce expenditures on public services or impose additional taxes on its members.

It is not only under a regime of income taxation that a reduction in work effort would lead to a net loss to society. A system of consumption taxes would produce the same result, because here also the value of the lost contribution would exceed the value of the lost claim. Consumption taxes obviously cause the value of an individual's claim on output to fall short of his contribution, because the prices which the individual pays for goods and services are made to rise relative to the money wage which he receives.

We should note that there are circumstances under any system of taxation when the net social loss following upon a reduction in work effort may exceed the amount of the lost tax revenue. If the value of the individual's contribution to total output exceeds the before-tax wage he is paid, then any curtailment of his effort will cause a decline, not only in tax revenues, but also in that "surplus" which he produces for society without remuneration. It is this problem which critics of the income tax have in mind when they claim that the high tax rates bear down with a special severity on business entrepreneurs and that any consequent reduction in entrepreneurial effort must be viewed as a grave matter. The implication is that entrepreneurs contribute to economic progress

something beyond what they are recompensed for, and that, therefore, any curtailment of their effort will cause losses for society exceeding the reduction in tax revenue.

It would seem, then, that the problem of income taxation and work incentives is a legitimate matter for concern, and that any inquiry into the problem ought to try and discover whether tax-induced reductions in work effort are concentrated among those groups of the population whose services to the community are undervalued by the remuneration which they receive. If disincentives are in fact concentrated among such groups, the social losses stemming from taxation are magnified.

A Framework for Discussion

In considering the problem of income taxation and work incentives we must be careful to specify the circumstances under which the income tax is being investigated. A statement like "The income tax deters work effort" is incomplete, at best. Meaningful pronouncements in this context must be comparative: one situation must be compared with another. And we should select those comparisons which are of practical interest.

On the matter of work incentives the income tax appears in a bad light if it is compared with the poll tax or a lump-sum tax. If an income tax were replaced by a poll tax which produced the same total tax yield, work effort would certainly tend to increase. An individual's tax liability under the poll tax does not increase along with his work effort, and so there can be no disincentive effect. But the poll tax, being objectionable on equity grounds, is not a realistic alternative to the income tax in the modern economy.

A more interesting comparison is that between the income tax and a tax on consumption, such as the general sales tax. It is often alleged that the sales tax is superior to the income tax from the viewpoint of maintaining work incentives. We shall return to this issue toward the close of our discussion, and we can merely note at the present that the sales tax is certainly capable of creating disincentives. The reward for extra effort is obviously impaired by the sales tax: the impairment occurs when income is spent instead of, as under the income tax, when income is earned.

The main part of our analysis will be concerned, implicitly or explicitly, with examining the effects of raising the level of income taxation for all income groups. Raising taxes cannot, of course, be done in isolation: such an event is usually accompanied by an increase in government expenditures. The increased government spending may by itself have some effect on work effort. For example, work effort will tend to be deterred if the spending is for government services which are either complementary to leisure (such as public recreation areas) or close substitutes for privately-purchased services (as may be the case with public medical care, which, for the typical individual, will tend to lower the urgency of earning income). Work effort may be stimulated if the government expenditure creates new demands for privately-purchased commodities. Thus, public spending on highways may cause individuals to work harder in order to earn enough income to buy automobiles. Since we are interested in abstracting the effects of a tax increase from the composite effects of an increase in both taxes and expenditures, it will be assumed in the subsequent discussion that the spending increase which implicitly accompanies any tax increase is devoted to services which, in

consumption, are independent of leisure and all privately-purchased commodities.

Besides examining the effects of an increase in the general level of income taxation, it is necessary to inquire whether changes in the progressivity of the tax (total yield being held constant) have any influence on the supply of work effort. The accusations against the income tax often include the claim that it is the steep progressivity of the rate schedule which is mainly responsible for creating disincentives.

One feature of the accusations against the income tax stands out most clearly. There is a general lack of convincing evidence in support of the disincentive argument. Those who claim that effort and initiative are blunted have offered little in support of this view beyond their own armchair reasoning, sometimes buttressed by casual inference from a few unrepresentative cases.

Reliable evidence does exist on the matter of income taxes and work effort, and it uniformly points to the conclusion that the disincentive argument is much exaggerated. There is less evidence on how the income tax affects choices between occupations, but the failure of the tax to affect the total supply of effort suggests that the distribution of effort is also little affected. The conclusions of the empirical studies are not surprising. Theoretical reasoning is far from suggesting that income taxation will unequivocally deter work effort in all circumstances. We shall discuss below the theory of the problem and also summarize the conclusions of the empirical work, examining first the matter of work effort and next the matter of occupational choices.

EFFECTS ON WORK EFFORT

Factors Offsetting the Disincentive Effects:

Theoretical Considerations

The alleged disincentive effects of income taxation have been the cause of much anxiety and complaint, but there are many other forces operating upon the individual's decisions concerning his work effort, and these other forces taken together may easily nullify any tendency to curtail effort because of taxes.

1. THE INCOME EFFECT

First, it is clear that the raising of income taxes may well spur the worker on to greater effort because of his desire to maintain his living standards. (It will be recalled that any effect on work effort that might be caused by the government's spending of the extra tax proceeds is ignored for the purposes of our present argument.) If taxes are raised, the individual can restore his disposable income to its former level only by working harder. This consequence of taxation, which has been called the "income effect", will occur simultaneously with the consequence stressed by the disincentive argument, which is known as the "substitution effect". The income effect of the tax, which leads to more work effort in the case of a tax increase, occurs because of the reduction in disposable income which is entailed and the consequent threat to living standards; the substitution effect, which leads to less work effort in the case of a tax increase, occurs because the reward for an extra hour of work effort has been diminished and, hence, at the margin leisure has been made more attractive. It is therefore evident that the direction and strength of the income effect of a tax

change will depend on the change that is occurring in the average or effective rate of tax, whereas the direction and strength of the substitution effect will depend on the change in the marginal rate of tax.

If rates are raised or lowered throughout the income tax schedule, the income effect and the substitution effect in the case of each individual worker will tend to offset each other. In each case it will be impossible to predict the outcome as regards work effort without having detailed knowledge about the financial circumstances and personal tastes of the worker. It is possible, however, to specify the kinds of conditions which are relevant to the issue. For example, the taxpayer is more likely to react to a tax increase by working harder if he is already burdened with fairly heavy financial commitments - such as mortgage payments, life insurance premiums, instalment payments on durables, college expenses for children, and so on. In these circumstances any reduction in his disposable income would lead to much embarrassment. The income effect will tend to outweigh the substitution effect.

Opposite tendencies will occur when the worker is able to sustain his living standards from tax-free sources of income in the event of an increase in the rates of tax applied to labour income. Thus, a tax increase is more likely to be followed by a decline in work effort when there are sizeable sources of "unearned" income which are exempt from the tax, such as capital gains.

The relative strength of the income effect will also depend on the nature of consumer interdependence. If a tax change has the effect of widening the disposable-income difference between a high-income household and a lower-income household which strives to copy the other's

consumption patterns, then the lower-income household will tend to increase its work effort so as not to be hopelessly outdistanced in the consumption race. Other forms of interdependence between households will give rise to different results.

The foregoing arguments may have left the impression that the effects of tax changes on productive effort can never be predicted with any confidence in the absence of detailed socio-economic information. In fact, some positive statements can be made when it is recalled that the direction of the income and substitution effects will depend on the changes that occur in the average and marginal rates of tax respectively. Thus, if a change in the structure of the income tax meant, for a particular worker, that his average rate of tax would be raised and his marginal rate reduced, it would be reasonable to say that work effort would be increased as a result, or at least would not be curtailed, for in this instance the income and substitution effects would reinforce each other.

We can make use of the above proposition and others like it to throw some light on the question of progressivity and work effort. It is very commonly asserted that increasing the progressivity of an income tax will definitely cause the total supply of work effort to decrease, or that reducing progressivity will lead to an expansion of work effort. Such consequences are by no means certain. Suppose that increasing progressivity implies reducing the marginal rates applied to low-income brackets and raising the rates applied to high-income brackets, so that the new tax schedule will yield the same total revenue as the old. Then part of the population will definitely decrease work effort (those with middle incomes whose average rate of tax will have gone down and

whose marginal rate will have increased or remained the same) while the remainder may respond in either direction (those with low incomes for whom both average and marginal rates have decreased and those with high incomes for whom both average and marginal rates have increased). 6/ It may seem unlikely that the net outcome of all such adjustments would be an increase in the supply of effort, but such an outcome could not be ruled out.

There are, indeed, relatively few definite propositions that can be made regarding progressivity and work effort. One proposition is that if there is a change in the schedule of tax rates such that an individual continuing to work as before would face an unchanged average rate and a raised marginal rate, then the rational individual would definitely tend to work fewer hours. Furthermore, the greater the rise in the marginal rate (the average rate remaining unchanged), the greater would be the reduction of work effort in such a case. Such propositions tend to support the view that rises in marginal rates of taxation from one income bracket to the next should not be too drastic if the supply of work effort is to be preserved. But the support is not unequivocal, for it is a far cry from propositions concerning how an individual reacts to a precisely specified change in average and marginal rates to propositions concerning the reaction of an entire taxpaying population, the members of which will experience varying incentives and disincentives depending on how their average and marginal rates of tax are changed.

2. CONSTRAINTS ON WORK HOURS

The disincentive effects of income taxes are also restrained by institutional limitations on the individual's freedom to vary his work

effort. The ordinary wage-earner or salary-earner is normally not able to work less than the standard number of hours per week; it is a question, say, of forty hours or nothing.

Although conventions such as the forty-hour week may indeed tend to keep the total supply of effort constant in the short run despite changes in income taxes, it is clear that in the longer run the greater part of the labour force has considerable discretion in determining its work hours. In the first place, business proprietors, professionals, and others who are their own masters are free to vary their work hours even in the short run, and it could be argued that it is precisely this group which is most likely to be inclined to reduce work effort, because its members typically face high marginal tax rates. Next, those who are employees have many opportunities to vary their work hours. Overtime may be available to them; they have freedom to decide whether or not to take on a second job; and in the long run the length of the work week can be influenced through collective action. For these reasons the argument which states that taxes cannot deter effort because effort is fixed by custom is not very convincing.

3. NONMONETARY INCENTIVES

A more telling criticism of the disincentive argument is that work effort is motivated by many other forces besides the hope of monetary gain. An individual may continue to work hard despite high tax rates because he enjoys working for the mere sake of it, or because he likes the social status and prestige which his job confers, or because he likes the sense of power which comes from directing business affairs, or for several other reasons quite unconnected with monetary reward net of taxes.

The tax rates are applied to monetary income but are not applied to the nonmonetary satisfactions (or "psychic income") derived from work, and we would expect that the effect of taxes on behaviour would be much moderated in cases where psychic income bulked large.

It can be noted that nonmonetary incentives are likely to be strongest among that part of the population which faces the highest tax rates and which, therefore, might be expected to suffer the greatest tax disincentives. Business executives and professionals pay the highest taxes among the working population but also have, perhaps, the strongest nonfinancial motivations to keep working.

Even where financial reward is important, it may be the before-tax rather than the after-tax reward which is relevant. Recent work by psychologists has shown that those individuals possessing a strong "need for achievement", individuals who have been shown to play a crucial role in the economy as business leaders and innovators, to some extent desire monetary reward, not for what it will purchase, but rather as a symbol of success in the quest for achievement in the business world. ^{7/} Achievement is measured by the before-tax income which an individual secures rather than the after-tax income; thus high tax rates may have no effect on the motivation to earn a high income as a symbol of success.

4. NONTAXABLE INCOME

So far we have been concerned with the effects of an income tax applied with full generality to all forms of remuneration. If we inquire into the effects of the income tax as actually administered, it is relevant to note that work effort is not likely to be deterred if the worker receives his reward for effort in a nontaxable form. It is common

practice in business for the remuneration of executives to be arranged so that full advantage is taken of loopholes in the tax legislation. In Canada, as in the United States and Britain, the arrangements consist mostly of providing income in the form of capital gains instead of as salary or dividend; also provided is income in kind, in the form of consumption classified as deductible business expenses, and various other nontaxable fringe benefits. Tax avoidance can be expected to moderate any work disincentives that might otherwise occur.

Some commentators have suggested that the chief effect of income taxation upon effort is to be found not so much in any reduction of effort as in the diversion of effort toward tax avoidance. There is little doubt that in the business world considerable time and energy is devoted toward taking advantage of tax loopholes. It would be very difficult to estimate with any accuracy what fraction of available resources is absorbed in the essentially wasteful task of designing schemes of tax avoidance. One suspects that the amount of effort thus misdirected may be quite small, but it may, nevertheless, be a more important problem than the question of disincentives.

The widespread use of stock options, padded expense accounts and other nontaxable fringe benefits in the remuneration of business executives can sometimes give the impression that such emoluments are essential to the continuation of executive effort, and that any closing of the loopholes which permit such practices would result in a curtailment of effort. But it seems obvious that if the opportunity for earning income in a nontaxable form is offered by the tax statutes, either intentionally or by default, then that opportunity will be seized whether or not the nontaxable income is really needed for the offsetting of

disincentives. The executive will elect to be paid in a nontaxable manner if he is given the choice, but his work effort may be undiminished even if no choice exists. And we have already suggested several reasons why an income tax, even when administered sternly and without concessions, is unlikely to have serious disincentive effects.

5. SHIFTING OF THE INCOME TAX

One final reason why the income tax is unlikely to deter effort is that the taxpayer is sometimes in a position to shift his personal tax burden on to someone else. Many self-employed businessmen and professionals have a substantial degree of control over the price which they can charge for their product or service. The individual is then able to insulate himself from increases in tax rates by making adjustments in his price. Similarly, the business executive may be in a position to insist that his firm compensate him for any tax increases that may occur (and the firm will be more willing to make the adjustment if it was previously paying the executive less than what he was worth). As Professor Musgrave has written, "the salary level for top executives or the fee level for highly paid professional services is usually an administered price, and may be subject to compensatory adjustments when tax rates rise." 8/

It should be added that income taxation may possibly cause a reduction in work effort even when shifting does occur. The process of shifting raises the price of the service to the consumer, who may in consequence reduce his demand. Thus, a lawyer who revises his fees upwards in order to cover an increase in income tax rates may find himself losing clients and his work input may correspondingly decline. It is clear that the extent of the reduction in work effort in such cases will depend

on the elasticity of demand for the services in question, and also on whether the taxpayer was previously charging the maximum that the traffic would bear or had been content with some lower price.

Evidence on the Effects of Income Taxation on Work Effort

Theoretical considerations, therefore, cast much doubt on the validity of the disincentive argument. It is now necessary to review the empirical studies which have investigated the problem. There have been five noteworthy attempts to discover the truth about taxation and work incentives, and the conclusions of these studies are remarkably similar despite the fact that the research methodologies used in the various studies and the populations which they scrutinized were quite dissimilar. The unanimous conclusion is that in general the income tax does not deter work effort to any significant degree. The same conclusion is reached by three other studies whose methodologies are, however, open to some question. ^{9/} There has not been a single study known to the writer which has demonstrated the existence of a strong and widespread disincentive effect.

It will be useful here to summarize the results of the leading empirical studies. The results are derived exclusively from the United States and Britain, but are obviously of wider significance.

1. BREAK: BRITISH ACCOUNTANTS AND SOLICITORS

One of the best pieces of research into the question of taxation and work incentives is that conducted by Professor George F. Break of the University of California in 1956. ^{10/} Break's study has been justly described as "searching, carefully designed, and skilfully executed." ^{11/}

A sample was drawn of 306 self-employed accountants and solicitors in England, a group which on theoretical grounds should have been especially prone to tax disincentives: they had considerable discretion to vary their work hours, they typically faced high marginal tax rates (63 per cent of the sample faced rates in excess of 50 per cent), and, because of the nature of their work, they were particularly aware of tax matters. The reaction of the businessmen to taxes was discovered by indirect questioning: they were asked to describe the factors which determined their work effort, and the inquiry as to whether taxes were an important factor was held back until later in the interview so as to avoid the problem of oversuggestion.

The validity of the answers was subjected to various internal checks, and as a result it was revealed that the real importance of tax effects was much less than might have been supposed from the declared opinions of the respondents. For example, "The assertion of one ebullient Irishman ... that he was subject to a tax disincentive appeared far less convincing when compared with his statement at another point in the interview that he was working 80 hours a week because he liked to work hard and build up a practice." ^{12/} It was found that 42 per cent of the sample reported some effect of taxation on their working behaviour: 18 per cent reported a tax disincentive, while 31 per cent reported a tax incentive; that is to say, they claimed to be working harder because of taxes (and 7 per cent reported both incentives and disincentives). The validation process, however, revealed that only a minority of both incentive and disincentive cases could be said to show evidence of a real and "significant" effect. In Break's estimation, only 6 per cent of the sample suffered a significant tax disincentive, and a slightly larger proportion -

8 per cent - were actually experiencing a tax incentive.

The net effect on the supply of effort, Break concludes, "... is not large enough to be of great economic or sociological significance." 13/ The response of most to the high taxes can be summarized in the words of one: "I complain bitterly about how little I am allowed to keep of every pound I earn, but I go on doing the work just the same." 14/

The most conspicuous effect of taxation on work effort - reported by 25 per cent of the respondents - was found to lie in the timing of retirement. The effect was in the direction of providing an incentive: retirement was postponed because income taxation retarded the accumulation of personal wealth. Break points out, however, that this tax effect may be much less important than the frequency of its being reported would indicate. Most of those claiming to be affected were not far advanced in their working lives, and the tax effect was, therefore, remote and hypothetical.

Some groups in Break's sample were, of course, more prone than others to suffer tax disincentives. The disincentive effects of high tax rates were found to be more noticeable among businessmen who were sole proprietors. Businessmen with partners or other colleagues who were dependent upon them in various ways had a strong motivation to sustain their work efforts for the sake of not letting the side down. Also, disincentives tended to be stronger among those facing the highest marginal tax rates, and indeed the study provides a hint that there is some threshold at a marginal tax rate of about 70 per cent where tax disincentives suddenly become more powerful. 15/

Disincentives were also found to be somewhat stronger among those groups who were relatively free of fixed financial commitments (such as life insurance premiums and mortgage payments) and for whom, therefore, the income effect of taxation would be relatively weak. However, both in this group and in those others mentioned above which were especially sensitive to disincentives, the disincentive effects were no more than moderate and were confined to a small minority.

2. MORGAN, BARLOW AND BRAZER: HIGH-INCOME AMERICANS

Similar conclusions have been reached in a personal-interview study of high-income Americans recently undertaken by the Survey Research Center of the University of Michigan. ^{16/} A representative nationwide sample of 957 individuals with incomes of over \$10,000 was interviewed in the spring of 1964 on matters of portfolio management and working behaviour. As in Break's study, the issue of tax disincentives was explored by both direct and indirect questioning.

The direct questions were put in the following form: "Has the income tax had any effect on how much work you do? In what way?" Only 12 per cent of the high-income individuals replied that the income tax caused them to work less (while virtually none reported that the tax made them work harder). Moreover, not all of the reported disincentives were plausible. Several of those claiming to work less had reported earlier in the interview that they had no opportunities to work more, and so the reality of the disincentive in these cases was in some doubt. Similar suspicions applied to those reporting a disincentive who were already working more than 60 hours per week. Removing these doubtful cases left only 6 per cent of the high-income individuals as having "plausibly" reported a disincentive.

Other inquiries revealed that neither the timing of retirement nor the participation of wives in the labour force was appreciably affected by tax considerations. The authors conclude as follows: "If it is provisionally accepted that tax disincentives are negligible among those with incomes under \$10,000, where marginal rates are low; if one accepts our result that only 6 per cent ... of those with higher incomes ... really work less because of the income tax; and if one accepts the additional finding that three-fourths of these persons are already working more than 34 hours per week and more than 47 weeks per year despite the disincentive, then it would appear that the loss of work effort in the economy due to the existence of the federal income tax instead of some feasible alternative has been small in the extreme. Nonpecuniary incentives to work are clearly very powerful."

3. SANDERS: AMERICAN BUSINESS EXECUTIVES

Professor Thomas H. Sanders of the Harvard Business School investigated the effects of taxes on 160 business executives in the United States who were interviewed between 1946 and 1950. 17/ His research technique also involved personal questioning, but the questioning took place in the course of informal discussions rather than through the medium of a structured questionnaire. Sanders' conclusion has been often quoted and deserves to be quoted again:

The evidence is overwhelming that the business executive is putting a full measure of work and energy into his regular job. His grumbling at the taxes he pays, and his wry allusions to working most of the time for the government rather than for himself, are only a superficial front on the large fact that his effort is not abated by reason of them; he is still going full blast. So far as any statistical computation has been possible, this fact is attested in a ratio of ten to one as against any other view; and with one small group saying that taxes drive the executive to harder work, and another small group giving examples of some relaxing of effort, these views practically cancelled each other out. 18/

Sanders' findings corroborate those of Break in a number of respects. As in Break's study, the most common effect of income taxation on work effort was revealed to be a postponing of retirement. Also, tax disincentives appeared to be somewhat more powerful among sole proprietors than among executives who were subject to some supervision.

One tax effect noted by Sanders gives cause for some concern. He reports that high taxes were tending to lower executive mobility. Promotions were sometimes refused and offers from other enterprises were sometimes declined because high taxes reduced the attractiveness of the better-paid positions. Sanders offers no estimate of the quantitative significance of this problem, and it would be difficult indeed to discover the truth. The refusal of a promotion is for most persons a delicate matter, and in many cases taxation may be offered as an excuse for the decision when the real reason is fear of the added responsibility, reluctance to move from the neighbourhood, and so on.

Sanders reports one further effect of taxation on mobility which is worth commenting upon. The American income tax, like the Canadian, makes it advantageous to remunerate executives by setting up pension plans for them. Once the executive has built up a large equity in such a plan, which usually he is unable to take with him to another job, there is a powerful deterrent to leaving the company, and the income tax has, perhaps, contributed in an indirect way to immobilizing the executive. But we can note that corporations would probably make widespread use of such "locking-in" devices even if the devices were not favoured by the income tax, for it is by these means that corporations can insure themselves against losing key executives to their competitors.

4. ROYAL COMMISSION ON THE TAXATION OF PROFITS AND INCOME:
BRITISH PIECE-RATE WORKERS

In 1952 a study of taxation and work incentives in Britain was undertaken for the Royal Commission on the Taxation of Profits and Income. ^{19/} Questions were put to a sample of 1,203 male and 226 female workers, all of whom worked on a piece-rate basis or were able to work overtime if they so wished. All of the workers were therefore free to vary their work hours in response to income taxes.

The Royal Commission's study provided interesting evidence on the chasm between the myth of tax disincentives and the reality. Questioned about the effects of income taxes "in general", 73 per cent of the men declared that they believed income taxes to be a deterrent to production; but when they were asked about their own personal actions and behaviour, it was revealed that only 5 per cent had materially adjusted their work effort in response to taxation. The survey also showed that the bulk of the taxpaying population were mostly ignorant of their personal tax situations. It was estimated that only about 4 per cent of the men knew in any detail how they were affected by the income tax. In view of such ignorance and in view of the other information yielded by the survey, the Commission seems to have been justified in concluding that "there was no evidence from this enquiry of productive effort being inhibited by the income tax structure within its present limits." ^{20/}

5. ROLFE AND FURNESS: BRITISH COTTON WEAVERS

The four studies described above employed the technique of personal

interviewing. A fifth study has used the alternative technique of examining the actual work effort of a group of operatives before and after a change in income tax rates. Rolfe and Furness collected data on the work hours of 120 British cotton weavers who worked under a piece-rate system and observed how the work hours responded to the tax reductions of 1946 and 1947. 21/

The findings of Rolfe and Furness tend to support the view that income taxation has relatively little effect on work effort, although it must be said that their results are somewhat more ambiguous than those of the four studies previously discussed. The ambiguity is not surprising, because the nature of the research technique makes it impossible to isolate the effect of tax changes from the effects of all the other forces influencing work effort.

It was found that when tax rates were reduced in 1946, the work hours of the cotton weavers increased slightly in the first few weeks and then fell back toward their previous level. The observations are consistent with the hypothesis that the substitution effect of the tax reduction outweighed the income effect in the short run, but that the income effect became more powerful in the longer run. The tax reduction of 1947 was also followed initially by a slight increase in work hours, but on this occasion work hours did not subsequently decline but continued to rise slowly. Rolfe and Furness suggest that the increase in work effort was perhaps sustained in the longer run because the tax reduction coincided with an improvement in the availability of consumer goods.

Taxation and Work Effort in Canada

No study has been undertaken of how income taxes affect work effort in Canada. To establish the point conclusively it would be necessary to carry out a survey which made use of the technique of personal interviewing, for it is only in this way that taxation can be placed in perspective as merely one of the complex forces governing working behaviour. Alternative techniques hold little promise of providing conclusive results in the Canadian case. There have been no radical changes since 1947 in the structure of exemptions and rates of the Canadian income tax, and hence there are no opportunities for observing from aggregative data how the population has reacted to a clear-cut change in the tax environment.

It does not seem necessary, however, to go to the length of conducting an expensive sample survey to be reasonably confident of how the income tax affects work effort in Canada. The five studies cited above investigated conditions in the United States and Britain and concluded unanimously that the detectible tax effects were negligible; it is hardly likely that a Canadian study would yield markedly different results in view of the similarity between the cultural characteristics and economic institutions of the three countries.

Such a judgment can, of course, be made with more confidence if an inspection of the Canadian tax rate schedule reveals that the configuration of average and marginal rates is not in theory more inimical to work effort than are those of the American and British schedules. A comparison between the three rate schedules as they existed in 1962 is shown in Table 1. Average and marginal rates of tax are shown for a

hypothetical family in each of the three countries, it being assumed that all income is "earned". It is somewhat hazardous to deduce conclusions about the relative incentive and disincentive effects of the three tax systems at given income levels. It is not easy to say what incomes are equivalent to each other in terms of purchasing power, and, moreover, it could not be supposed that the motivations experienced at any given real income in each of the three countries would be of identical strength. The following generalizations, based on the comparative rates shown in Table 1, should, therefore, be regarded with some reserve.

For almost all income brackets the average and marginal rates in Canada were substantially lower than those in Britain. One would therefore expect that both the income effect and the substitution effect of taxation would be weaker in Canada than in Britain. Since the studies by Break, the Royal Commission on the Taxation of Profits and Income, and Rolfe and Furness suggest when taken together that tax effects in Britain are negligible both at modest incomes and at high incomes, it is reasonable to state that the same conclusion would probably hold true in the case of Canada. It is interesting to observe that in a narrow range of incomes around \$15,000 the marginal tax rate in Canada slightly exceeded that in Britain. This anomaly had only existed since 1961, at which time the British tax structure was revised so as to exempt an additional part of earned income from surtax. At the time of Break's study of the high-income professionals in 1956, the marginal rates in Britain were appreciably higher than those shown in Table 1.

Table 1

Individual Income Tax Rates in Canada, United States, and Britain

Tax rates applying in 1962 to a married taxpayer aged under 65 with two children aged under 11;
all income is assumed to be "earned" 1/; social insurance taxes are excluded

Income before exemptions and deductions 2/	CANADA		UNITED STATES		BRITAIN	
	Marginal Tax Rate	Average Tax Rate	Marginal Tax Rate	Average Tax Rate	Marginal Tax Rate 3/	Average Tax Rate
\$ 2,000	0%	0.0	0	0.0	16.5	0.9
4,000	14	3.2	20	5.0	30.1	11.6
6,000	19	7.0	20	8.9	30.1	16.9
8,000	22	10.1	22	11.1	30.1	19.5
10,000	26	12.6	22	12.8	30.1	21.1
15,000	35	18.0	26	15.5	34.4	24.3
20,000	45	23.0	30	18.0	50.0	30.4
30,000	50	29.4	38	22.3	71.2	36.0
50,000	55	36.9	56	30.0	86.2	50.4
100,000	65	46.3	69	41.3	88.7	66.3
200,000	70	52.6	81	48.7	88.7	74.4

1/ Wages, salaries, bonuses, commissions, profits of unincorporated enterprises, and professional income.

2/ The assumed exchange rates are \$2.80 Canadian = \$2.80 United States = £ 1. Personal exemptions for the hypothetical family were \$2,600 in Canada, \$2,400 in the United States, and \$1,232 in Britain. Other deductions at each income level are assumed to be equal to the average deductions claimed by taxpayers at that level. Estimates of average deductions at the various income levels are derived from Department of National Revenue, 1962 Taxation Statistics, Ottawa; United States Treasury Department, Statistics of Income, 1959: Individual Income Tax Returns, Washington, D.C.; and One Hundred and Second Report of the Commissioners of Her Majesty's Inland Revenue for the Year ended 31st March 1959, London.

3/ The statutory rate adjusted for the earned income allowance.

As for the comparison between Canada and the United States, we can note that for incomes up to about \$7,000 the average and marginal rates in Canada were lower. For this range of incomes both the incentive and disincentive effects of taxation would therefore be weaker than in the United States. About six out of every seven Canadian families fall into this category. 22/ Among higher incomes the relationship between the Canadian and American schedules was not uniform. In the range of income from \$7,000 to \$10,000 both the average and the marginal rates in the two countries were almost identical. In the range from \$10,000 to \$15,000 average rates in the two countries remained approximately equal but the Canadian marginal rate was significantly higher than the American: one would therefore expect that disincentives would be stronger in Canada. In the income range from \$15,000 to \$35,000 both marginal and average rates were higher in Canada, and it would be difficult to say whether the Canadian rate schedule was more favourable or more unfavourable to work effort than was the American. For incomes above \$35,000 the marginal rate in Canada was lower while the average rate was higher, and one would affirm, in consequence, that the American schedule would be less favourable to work effort. (The income ranges mentioned in the preceding sentences are merely approximate and only apply to the hypothetical family described in Table 1). Clearly it would be rash to say that, all taxpayers being considered together, the Canadian schedule caused stronger disincentives than did the American. 23/

It should be noted, of course, that in all three countries the theoretical effects of the rate schedule on work effort are vitiated by the numerous means available for tax avoidance. This circumstance raises

further doubts about whether the Canadian income tax really acts as a deterrent to work effort in any significant way.

In further support of the argument that the tax effect is negligible we can cite some evidence from the Canadian economy which is suggestive even though somewhat indirect. In Canada as in other western countries the secular increase in real wage-rates has been accompanied by a secular decline in hours worked. Between 1946 and 1961 the average wage per hour (corrected for changes in purchasing power) in Canadian manufacturing industries rose by 55 per cent and over the same period the average number of hours worked per week declined by 5 per cent. 24/ There do not seem to have been any other factors tending to alter the length of the work week during this period which compare in strength to the rise in real wage-rates. The degree of progressivity in the tax structure, for example, remained more or less constant over the period. The inference seems clear that Canadian wage-earners have taken some of their gains in the form of added leisure; in formal terms the income effect of the rise in real wage-rates has outweighed the substitution effect. This conclusion is strengthened by some recent survey evidence from the United States, where, as in Canada, there has been secularly a negative correlation between real wage-rates and hours worked. Morgan, David, Cohen, and Brazer have demonstrated quite rigorously from sample survey data that the negative correlation exists on a cross-sectional basis (that is, among families of varying income surveyed at one time) as well as on an aggregative time-series basis. 25/

The significance of these tendencies for the tax problem lies in the conclusion regarding the relative strengths of income and substitution effects. If the income effect of a rise in the real wage-rate outweighs

the substitution effect, with the result that work effort declines, then it would be reasonable to conclude that the income effect of a proportional income tax, which would be equivalent to a fall in the real wage-rate, would likewise outweigh the substitution effect, so that work effort would increase. In other words, the typical wage-earner's desire to resist a fall in disposable income would tend to prevail over any disincentive effects of the decrease in his real wage-rate. Progressivity in the income tax, by giving relatively more weight to the substitution effect, probably offsets this tendency, and it could be inferred that some degree of progressivity is necessary if increases in the income tax are to leave work effort substantially unchanged.

EFFECTS ON OCCUPATIONAL CHOICES

The Undesirable Redistribution of Effort

Closely related to the question of the effects of taxation on the total supply of effort is the question of its effects on the distribution of effort, or on the choices made by individuals between alternative occupations. It is sometimes alleged that the income tax renders highly-paid occupations less attractive and that, therefore, there are fewer individuals entering those careers which do most to promote the long-run dynamism of the economy. Sanders in his study found that business executives were much concerned about this consequence of taxation, even though they tended to think that the threat was potential rather than actual: "... the majority tended to a pessimistic mood, expressing fears that the reduced emoluments of business would cease to attract young men to arduous executive careers." 26/

No convincing data have ever been offered in support of this point of view, although some observers have found suggestive evidence in the alleged tendency of younger people in recent years to prefer careers with a high degree of security. Testifying before a congressional committee in the United States, one spokesman for the business community offered the following opinion:

It has been noted by many sociologists that for young men of ability the lure of security at a modest level has gained greatly in recent years as against the desire to venture and work to reach the top. I suspect that one of the basic reasons for this is that the financial rewards offered today just don't seem worth the struggle. 27/

Professor Buchanan draws similar conclusions from the same sociological developments. 28/ However, even if the existence of such developments be admitted (and it is not at all obvious that it should be), no link whatsoever has been shown to exist between the income tax and the quest for security. There are numerous other factors which could explain the phenomenon, and it seems likely that in this area, as in others, taxation is being used as a scapegoat.

Before we proceed to analyze the problem of how taxation affects occupational choices, it is worth pointing out that society would not necessarily lose even if the income tax did in fact divert individuals away from highly-paid careers. On the contrary, such a rechannelling of resources would result in a positive social gain if, for example, the contributions of individuals in low-income occupations to the general social welfare exceeded what they were paid, while the opposite held true for individuals in high-income occupations. It would obviously be difficult to ascertain the actual relationships between contributions and rewards in the different occupations. But it should not be assumed

that the allocation of individuals between occupations is necessarily optimal in the absence of income taxation and that any reallocation induced by the income tax is necessarily regrettable.

Theoretical Considerations

In examining the total effect of the income tax on the occupational structure of an economy, we can note first that the government's administration of the tax and the public's compliance with it create a demand for the services provided by certain occupations, and that, therefore, the flows of labour into the various occupations will be affected from the demand side. The income tax has certainly led to an increase in the number of lawyers and accountants. It would be difficult to estimate what fraction of total professional resources is engaged in the essentially unproductive tasks of tax administration and tax compliance, but it is probably true to say that the income tax, in both its personal and corporate forms, is liable to make greater demands upon the legal and accountancy professions than would be made by a system of indirect taxation providing an equivalent revenue yield.

We turn now to the manner in which taxation affects occupational structure from the supply side; the question, that is, of how taxation affects the willingness of individuals to move into alternative occupations. A simple model can be described which will elucidate the matter. A worker can be seen as having a certain number of occupations open to him on the basis of his intelligence, age, physical vigour, and other factors over which he has little or no control. Each occupation will promise a certain income, but the worker will not necessarily choose to enter the occupation which will provide him with the highest income. He

will, if rational, choose so as to maximize his satisfaction and will take into account not only the income to be earned in the various available occupations but also the disagreeable aspects of each (such as long hours or physical hazards) and the pleasurable aspects (such as comradeship or social prestige). If there is a large enough change in any of these aspects (income, utility, and disutility) of any of the occupations open to him, the worker may be induced to change his occupation.

In the context of this model we can consider the effect of introducing a proportional income tax of general application. The money incomes to be derived from each of the available occupations will have been reduced proportionately. We can see that in deciding whether or not to change his occupation the worker is subject to conflicting forces, just as in the case of taxation and work effort. In one respect occupations offering incomes higher than that of the occupation initially chosen will become less attractive: as regards psychic income, such occupations remain more disagreeable (or less agreeable) than that actually chosen, but, because of the tax, their offsetting attraction of higher income will have been diminished in absolute terms. Yet, at the same time the worker will be inclined to shift to a more lucrative calling when he considers that this is the only way he can restore the living standards now threatened by taxation. 29/ Which of the two effects will prove to be more powerful cannot be predicted unless one has more detailed information about the worker's personal circumstances.

An actual income tax like the Canadian is of course a far cry from the simple and general levy just considered, but we can indicate what features of a typically complex income tax are likely to have some

bearing on the matter of occupational choices. A progressive rate schedule will reduce the disposable incomes derived from highly-paid occupations proportionately more than those derived from occupations which are less well paid. Hence, increasing the progressivity of the tax would probably tend to cause a shift out of highly-paid occupations. Such a tendency, however, would not necessarily occur; as was explained above in connection with progressivity and work effort, there are conflicting income and substitution effects in operation and it is not obvious that the substitution effect will always predominate. A further effect of progressivity (unmodified by any averaging device) would be to render less attractive occupations, such as those of entertainers, professional sportsmen and artists, where income fluctuates highly from year to year.

There are other features of the income tax which favour particular occupations. Occupations will become relatively more attractive if they provide for the receipt of income in a nontaxable form. Thus, the self-employed will be favoured relative to employees, because the self-employed have more opportunities to manipulate the form of their earnings; business careers will be more attractive than public service careers, because businesses are able to make use of the stock option and similar rewards which are either wholly or partially exempt from taxation; it is possible that unionized trades will be more attractive than the non-unionized, at least to the extent that unions succeed in acquiring income for their members in the form of nontaxable fringe benefits; there is some advantage given to farming as a livelihood, because of the de facto nontaxation of most of the income received in the form of food and fuel produced and consumed on farms. Furthermore, those occupations will be

favoured in which the individual has wide discretion in fixing his wage-rate and is thus able to shift his personal income tax forward to the buyers of his products or services. The shifting of any tax increase will be relatively easy in those cases where the individual has been charging a price less than what the traffic will bear, and this sort of pricing policy is undoubtedly common in many professional occupations.

We can conclude from this review of those features of the income tax which affect occupational choices that the severity with which the progressive rates would otherwise bear down on high-income entrepreneurial occupations is mitigated by the numerous opportunities for avoidance and shifting.

Even if these opportunities did not exist, however, there would be good cause for doubting that the income tax would have much effect on occupational choices. First, individuals are drawn to enter their occupations by many factors besides financial reward. We have discussed the question of nonmonetary incentives in connection with the matter of work hours, and it suffices to note here that the existence of such incentives is certain to moderate the effect of taxation on occupational choices. Secondly, there are many rigidities or market imperfections which prevent a free flow of labour between occupations in response to tax inducements. It is obvious that most of the members of the labour force have only a restricted range of occupations open to them - in view of their educational qualifications, age, physique, intelligence, personality, and other such limiting factors. An occupation once entered is not easy to leave without a painful readjustment and the loss of much sunk capital, intellectual and otherwise. In the modern economy there is only a limited degree of shifting between occupations.

To a large extent, therefore, the question of how taxation affects occupational choices resolves itself into the question of whether the young adult in the process of choosing a career takes account of taxation when he makes his decision. So far as the writer knows, the only empirical evidence on this point is that provided in a recent study by Grubel and Edwards. ^{30/} A sample of 50 graduating seniors at Stanford University was asked whether tax considerations affected their impending choice between occupations. Ten of the students replied in the affirmative, but none of them had voluntarily mentioned taxes when questioned earlier in the interview about the general factors affecting his choice, and so it is reasonable to feel some doubt as to the reality of the alleged tax effect.

Evidence on the Effects of Income Taxation on Occupational Choices

No comprehensive study has been undertaken in Canada or elsewhere on how the income tax affects occupational choices. A study designed to provide reliable evidence would have to be of the personal interview type. Individuals falling into a representative sample would be asked questions about their reasons for choosing their occupations or for changing jobs.

In the absence of such information, which would be expensive to collect, we can suggest that the evidence cited above as supporting the conclusion that the income tax has little deterrent effect on work effort in Canada will also support the conclusion that the income tax does not cause any significant exodus from high-income occupations. Most of the factors which moderate the effect of taxation in the case of work effort - the strength of the income effect relative to the substitution effect,

the importance of nonmonetary incentives, and the opportunities for shifting and avoidance - will operate similarly in the case of occupational choices.

CONSUMPTION TAXES AND WORK INCENTIVES

We can return finally to the question of whether a partial replacement of the income tax by a system of consumption taxes is likely to stimulate work effort. The evidence from the studies cited above, which suggests that work effort in Britain and the United States has changed scarcely at all in response to progressive income taxation, is consistent with at least two hypotheses: first, that work effort is primarily determined by the institutional and sociological factors previously discussed; and second, that work effort is, in fact, sensitive to changes in rates of monetary reward, but that the income and substitution effects of the income tax have roughly offset each other. The judgment concerning the relative effect of consumption taxation on work effort will to some extent depend on which of the two hypotheses is true.

If institutional and sociological factors are predominant influences on work effort, then the replacement of one tax by another can be expected to have little effect on work effort. If, by contrast, effort is sensitive to changes in rates of monetary reward, then the consumption tax appears at first glance to be superior to the income tax on the basis of any of three particular arguments. These arguments stem respectively from the assumption of a money illusion, the exemption of saving, and the differential incidence of a system of consumption taxation. However, on further examination none of the three arguments seems very convincing.

The assumption of a money illusion is contained in the following kind of argument. The reward for effort is reduced by the income tax when the income is earned and by the consumption tax when the income is spent; however, the individual worker will be aware of the collection of the income tax but will not be aware of the collection of a consumption tax, which, after all, does not impinge directly on his gross earnings and is merely reflected in product prices. Even if the worker has such an illusion, however, it would be wrong to conclude that he will definitely expand his work effort when a consumption tax replaces the income tax. He may believe that the reward for effort is greater under the consumption tax, but as we have argued before, an increase in the reward will simultaneously both stimulate and deter work effort and the net outcome is unpredictable. The income and substitution effects of the illusory increase in real wages will tend to offset each other.

It is sometimes argued that the consumption tax is relatively favourable to work effort because the tax does not apply to saving and, therefore, one method of disposing of the reward for work effort is exempt from taxation, whereas under a fully general income tax no part of the reward is exempted. There are two fallacies in this argument. The first is to believe that savings are always exempted from consumption taxation. If the worker saves in order to consume later, the application of the consumption tax to his current saving is merely postponed; even if he saves in order to leave an estate to his heirs, he may recognize that the consumption taxes will eventually apply to his estate in the event of its dissipation. The second fallacy is to believe that an increase in the reward for effort (or a partial exemption of it from taxation) will necessarily induce more work effort. Income and substitution effects are again in conflict.

Finally, it is alleged that the differential incidence of consumption taxes is likely to stimulate work effort. Most feasible systems of consumption taxation are likely to be less progressive than the typical income tax, and progressivity is thought to be inimical to work effort. However, as we have argued above, the effects on the work effort of an entire population which follow from a change in the degree of tax progressivity cannot be predicted with any confidence. The replacement of a progressive income tax by a less progressive system of consumption taxes will cause various combinations of changes in average and marginal tax rates for the different taxpaying units in the population, and the net outcome as regards work effort cannot be foretold.

CONCLUSIONS

Our analysis leads to the following conclusions:

1. Theoretical reasoning and empirical evidence combine to suggest that an income tax like the Canadian has little net effect on the total supply of work effort in the economy.
2. One of the chief arguments in favour of greater reliance on indirect taxes - the argument which cites the disincentive effects of the income tax - is therefore weakened. General considerations suggest that a replacement of the income tax by consumption taxes would not necessarily stimulate work effort.
3. Furthermore, if it were desired to finance an expansion of the public sector by raising rates throughout the income tax schedule, such a step could be taken without fear of seriously deterring work effort. The disincentives created by rises in marginal rates would tend to be offset by

the incentives created by rises in average rates, and in any case work effort is determined by many other factors besides monetary reward.

Studies in Britain have shown that a tax schedule which imposed at all income levels marginal rates which were distinctly higher than those now imposed in Canada did not significantly deter work effort.

4. Achieving a further redistribution of income by means of increasing the progressivity of the income tax (while holding the total revenue yield constant) would not necessarily cause a decline in the total supply of work effort.

5. By the same token, a moderation of the existing progressivity would not necessarily induce more work effort. A reduction in the high marginal rates might, nevertheless, have the useful consequence of redirecting effort away from tax avoidance.

6. The income tax probably has little influence on occupational choices. That the tax discriminates in favour of some occupations and against others should therefore be regarded as a violation of interpersonal equity rather than as a cause of distortions in the occupational structure.

REFERENCES

- 1/ Editorial in The Edmonton Journal, 28th August 1962, p. 4.
- 2/ Editorial in The Financial Post, Toronto, 20th October 1962, p. 1.
- 3/ Victor Oland, President of The Canadian Chamber of Commerce; speech reported in the Shawinigan Falls Standard, 19th December 1962.
- 4/ Editorial in Canadian Business, Montreal, February 1963, p. 21.
- 5/ Maurice Cutler, columnist, reported in Style, Toronto, 4th March 1963.
- 6/ See Richard A. Musgrave, The Theory of Public Finance, New York: McGraw-Hill, 1959, pp. 243-44.
- 7/ David C. McClelland, The Achieving Society, Princeton, N.J.: D. Van Nostrand Co. Inc., 1961, pp. 234-47.
- 8/ Musgrave, op. cit., p. 362.
- 9/ Robert Davidson, "Income Taxes and Incentive: The Doctor's Viewpoint", National Tax Journal, VI, September 1953, pp. 293-97; Leslie Buck and Sylvia Shimmin, "Is Taxation a Deterrent?" Westminster Bank Review, August 1959, pp. 16-19; and Clarence D. Long, "Impact of the Federal Income Tax on Labor Force Participation", in Joint Committee on the Economic Report, Federal Tax Policy for Economic Growth and Stability, 84th Congress, 1st Session, Washington, D.C.: U.S. Government Printing Office, 1955, pp. 153-66. The groups investigated in these three studies were respectively 7 Boston doctors, 32 British operatives, and the entire labour force in five countries. In all cases the results must be viewed with suspicion, either because of the smallness of the sample or because of the failure to isolate tax effects from all other effects.
- 10/ George F. Break, "Income Taxes and Incentives to Work: An Empirical Study", The American Economic Review, XLVII, September 1957, pp. 529-49.
- 11/ Walter W. Heller, "The Impact of Income Taxation on Work Incentives," Canadian Tax Journal, VI, November-December 1958, p. 422 at p. 425.
- 12/ Break, loc. cit., p. 534.
- 13/ Ibid., p. 543.
- 14/ Ibid., p. 545.
- 15/ At the time of Break's survey a rate of 70 per cent was reached at an income level (before exemptions and deductions) of about £5,000.

- 16/ A summary report of the study findings is contained in James N. Morgan, Robin Barlow, and Harvey E. Brazer, "A Survey of Investment Management and Working Behavior Among High-Income Individuals," Papers and Proceedings of the 77th Annual Meeting of the American Economic Association, LV, May 1965, No. 2, Chicago, Ill., pp. 252-64. The full report will be published in 1966 by the Brookings Institution as part of its series of Studies of Government Finance.
- 17/ Thomas H. Sanders, Effects of Taxation on Executives, Boston: Harvard University Graduate School of Business Administration, 1951.
- 18/ Ibid., p. 17.
- 19/ Royal Commission on the Taxation of Profits and Income, Second Report, Cmd. 9105, London: Her Majesty's Stationery Office, 1954, pp. 91-124.
- 20/ Ibid., p. 92.
- 21/ Sidney E. Rolfe and Geoffrey Furness, "The Impact of Changes in Tax Rates and Method of Collection on Effort: Some Empirical Observations", The Review of Economics and Statistics, XXXIX, November 1957, Harvard University Press, pp. 394-401.
- 22/ Dominion Bureau of Statistics, Distribution of Non-Farm Incomes in Canada by Size, 1959, Ottawa: Queen's Printer, 1962, p. 22.
- 23/ The tax cut passed by the U.S. Congress in 1964 has altered somewhat the relationship between the American and Canadian rate schedules. For incomes up to about \$6,000 the American marginal and average tax rates applicable in 1965 are almost identical to the Canadian. At higher incomes both sets of American rates are lower than the Canadian, and hence no theoretical conclusion can be reached about which country's rate schedule is more favourable to work effort. The difference between the marginal rates in the two countries (and between the average rates) increases along with income up to an income level of about \$25,000, at which point the Canadian marginal rate is about 75 per cent higher than the American and the average rate about 55 per cent higher. At still larger incomes the differences between marginal rates in the two countries and between average rates begin to diminish.
- 24/ Dominion Bureau of Statistics, Canada Year Book, 1962 pp. 721, 930 and 1952-53, p. 1012 (Ottawa: Queen's Printer).
- 25/ James N. Morgan, Martin H. David, Wilbur J. Cohen, and Harvey E. Brazer, Income and Welfare in the United States, University of Michigan, Survey Research Center, New York: McGraw-Hill, 1962, pp. 76-77. From a nationwide sample of American families the researchers show a clear negative correlation between hourly earnings and hours worked even when the influence of all the following forces upon hours worked has been taken into account: family composition, age, education, occupation, physical condition, readiness

to help parents or children, attitude toward hard work, religious preference and church attendance, race, degree of local unemployment, gaps between education of husband and wife, and immigrant status of the family head and his father. Tax disincentives are clearly not responsible for causing the negative correlation, because the correlation persists across adjacent income groups for which the marginal tax rate remains unchanged.

- 26/ Sanders, op. cit., p. 51
- 27/ Crawford H. Greenewalt, "The Effect of High Tax Rates on Executive Incentive", in The Joint Committee on the Economic Report, Federal Tax Policy for Economic Growth and Stability, 84th Congress, 1st Session, Washington, D.C., 1955, p. 185 at p. 188.
- 28/ James M. Buchanan, The Public Finances, Homewood, Ill.: Richard D. Irwin, Inc. 1960, p. 286.
- 29/ See Alan Williams, Public Finance and Budgetary Policy, London, George Allen and Unwin Ltd., 1963, p. 46.
- 30/ Herbert G. Grubel and David R. Edwards, "Personal Income Taxation and Choice of Professions," The Quarterly Journal of Economics, LXXVIII, February 1964, pp. 158-63.

BIBLIOGRAPHY

- Break, George F., "The Effects of Taxation on Work Incentives," in Joint Committee on the Economic Report, Federal Tax Policy for Economic Growth and Stability, 84th Congress, 1st Session, Washington, D.C.: U.S. Government Printing Office, 1955, pp. 192-99.
- _____, "Income Taxes and Incentives to Work: An Empirical Study" American Economic Review, XLVII, September 1957, pp. 529-49.
- _____, "Income Tax Rates and Incentives to Work and to Invest", in Committee on Ways and Means, Tax Revision Compendium, Volume 3, Washington, D.C.: U.S. Government Printing Office, 1959, pp. 2247-55.
- Goode, Richard, "The Income Tax and the Supply of Labor", Journal of Political Economy, LVII, October 1949; reprinted in Musgrave, Richard A., and Shoup, Carl S. (eds.), Readings in the Economics of Taxation, Homewood, Illinois: Richard D. Irwin, Inc. 1959, pp. 456-69.
- Greenewalt, Crawford H., "The Effect of High Tax Rates on Executive Incentive", in Federal Tax Policy for Economic Growth and Stability, pp. 185-91.
- Grubel, Herbert G., and Edwards, David R., "Personal Income Taxation and Choice of Professions," The Quarterly Journal of Economics, LXXVIII, February 1964, pp. 158-63.
- Heller, Walter W., "The Impact of Income Taxation on Work Incentives", Canadian Tax Journal, VI, November-December 1958, pp. 422-26.
- Long, Clarence D., "Impact of the Federal Income Tax on Labor Force Participation", in Federal Tax Policy for Economic Growth and Stability, pp. 153-66.
- Morgan, James N., Barlow, Robin, and Brazier, Harvey E., "A Survey of Investment Management and Working Behavior Among High-Income Individuals", Papers and Proceedings of the 77th Annual Meeting of the American Economic Association, LV, May 1965, No. 2, Chicago, Ill., pp. 252-64.
- Musgrave, Richard A., The Theory of Public Finance, New York: McGraw-Hill 1959, Chapter 11.
- Rolfe, Sidney E., and Furness, Geoffrey, "The Impact of Changes in Tax Rates and Method of Collection on Effort: Some Empirical Observations", The Review of Economics and Statistics, XXXIX, November 1957, pp. 394-401.
- Royal Commission on the Taxation of Profits and Income, Second Report, Cmd. 9105 London: Her Majesty's Stationery Office, 1954, pp. 91-124.
- Sanders, Thomas H., Effects of Taxation on Executives, Boston: Harvard University Graduate School of Business Administration, 1951.