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INCIDENCE OF INCOME TAXES

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by

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TABLE OF CONTENTS

CHAPTER		PAGE
I.	THE SCOPE OF INCIDENCE ANALYSIS.....	1
II.	DEFINITION OF TERMS.....	16
III.	THE CONCEPTS AND METHODS OF PERSONAL INCOME TAX INCIDENCE ANALYSIS.....	62
IV.	PERSONAL INCOME TAXATION AND THE SUPPLY OF PRODUCTIVE EFFORT.....	103
V.	INCOME TAXATION AND THE SUPPLY OF CAPITAL.....	139
VI.	INCOME TAXATION AND THE SUPPLY OF LAND.....	167
VII.	BUSINESS INCOME TAXATION.....	171
VIII.	CONCLUSIONS.....	204

Chapter I.

THE SCOPE OF INCIDENCE ANALYSIS

The Area of Incidence Analysis.

A study of the shifting and incidence of income taxation is a part of the broader study of the shifting and incidence of taxation in general. Hence the scope of this treatise, which deals with this particular type of levy, is necessarily confined within the same overall boundaries which delimit the entire field. As a consequence specific reference to income taxation is unnecessary when we stake out the outer limits of our analysis.

Interest in the consequences occasioned by the imposition of taxation is by no means of recent origin. Although conjecture as to these matters probably accompanied the exaction of the first levies, incidence theory, as we know it, is a part of modern economics and its evolution has paralleled the growth of understanding in this area. Admittedly it would be both interesting and informative to trace development of the subject through the writings of the Mercantillists, Physiocrats, and the Classical School of Smith, Ricardo, and Mill. This, however, is not essential in order to comprehend current incidence analysis which is formulated in terms of neo-classical price theory. Consequently our attention will focus on more recent treatments of the problem, in most cases dating back no further than

the works of Alfred Marshall. Further the historical job has already been done in such a scholarly manner by Seligman that little of worth could be realized by attempting to improve upon his efforts.¹

As currently conceived the area of incidence analysis includes those economic consequences which ensue as the result of the imposition of taxation. Among these the distribution of losses or "burdens", the influence upon the volume and composition of production, the effect upon prices and consumption, and the variations in the supplies and utilization of productive resources, are most important. However, there are some phenomena related to taxation which are usually excluded. Two of these, administrative considerations and the results of the expenditure of tax proceeds, are of sufficient importance that their exclusion requires justification.

The Exclusion of Administrative Considerations

The field of tax administration embodies the techniques of assessment, collection, and enforcement, employed to convert the intent to extract revenue into an operating reality. The importance of a study of such matters is unquestionably great. Adam Smith's famous "Cannons of Taxations", which still enjoy almost universal acceptance, re-

1. Seligman, Edwin R. A., The Shifting and Incidence of Taxation, 9th edition revised, 1921. See Part I.

late more to the administrative aspects of taxation than to the broader economic problems which taxes engender. Nevertheless, the approach and methods utilized to study administrative problems are so different from those of incidence analysis that it is advantageous to discuss them separately. In addition the type of problems dealt with are usually fundamentally different in kind. The importance of administrative practice to our subject, however, must not be forgotten. Taxes are not mere prescriptions of statute, but reflect in many respects the influence of the administrator. It would be futile to base conclusions regarding the economic consequence of a tax on a rigorous and literal interpretation of a tax law if, in fact, many of the legislative stipulations were either ignored or perverted by those responsible for their execution. Consequently, the incidence analyst must take as his starting point the taxes as they really are, the product of legislation and administration.

The Exclusion of the Effects of Expenditures

A more difficult problem of demarcation of scope presents itself when we consider the issue of whether to include the results flowing from the expenditure of tax proceeds. Although most writers, following traditional lines, have considered the analysis of expenditures and their effects to belong in a different division of public finance,

strong and well reasoned opposition to this exclusion has developed in some quarters.²

The Case for the Inclusion of the Effects of Expenditures.

Duncan Black devotes an entire chapter detailing the objections which have been made to this omission, tracing the views of several famous writers who contend that the expenditures of tax proceeds engender significant effects which cannot be disregarded if the distribution of the tax burden is to be assayed properly.³ He points out that expenditures will influence supply and demand schedules for products, saving, accumulation and maintenance of capital, and other important variables. Even if the expenditures effects are spread thinly over a wide field, as in the case of a commodity tax, he still maintains - "It is wrong, however, even in an instance of this sort, not to point out that effects will be produced by the expenditure of the revenue which has been raised by means of the tax, both in this and in outside industries. These effects will be more important, the larger the total revenue which the government collects by means of

2. Schultz, W. J., and Harris, C. L., in their American Public Finance exemplify the traditional viewpoint. "Three basic divisions in the subject matter of Public Finance are generally recognized. (1) The study of governmental functions and expenditures, (2) the study of governmental borrowing and indebtedness, and (3) the study of current sources of governmental revenue, of which the most important is taxation", p. 1.

3. Black, Duncan, Incidence of Income Taxes, Ch. X.

the tax".⁴ His position is well summarized when he says "If the imposition of a tax gives rise to an increase in governmental revenue, then the economic effects produced when this revenue is spent ought to be taken into account in investigating the incidence of the tax".⁵ He exemplifies this position by citing Wicksell's distinction between two types of tax analysis. "If it is a question of levying, either one tax or another tax, each with the same yield, public expenditures will be left unchanged whichever is levied; and in this case we may logically inquire what the economic effects of either tax will be, irrespective of how the tax proceeds are expended. If, alternatively, the problem we are dealing with is one where, if a tax be imposed, at the same time the expenditure of the State will be increased by an amount equal to the yield of the tax, then in this case our treatment of incidence must take the expenditure of the tax proceeds into account".⁶ Professor Kendrick takes a similar view if the expenditure is clearly a function of the tax revenue, as for example the proceeds of the gasoline tax being expended on public roads.⁷ In essence, therefore, these writers would indite the traditional approach on the grounds that its analysis is inadequate, treating only a fraction of the incidence problem.

4. Op.cit., p. 135.

5. Op. cit., p. 137.

6. Op. cit., p. 142.

7. Kendrick, M. Slade, "Incidence and Effects of Taxation Theoretical Aspects", American Economic Review, Dec. 1937.

Professor Holden apparently criticizes the classical position on similar grounds.⁸ He points out that during the period when the classical incidence approach was formulated the financial outlays of government were largely composed of war expenditure and service on public debt. This type of outlay was subject to very little discretionary variation by fiscal policy makers, since military expenditures were dictated by exigencies of war and public debt was a given quantity. Thus the conditions of Wicksell's first case were realized, and incidence analysis independent of expenditure was justified. This he points out is no longer the typical situation⁹ since wide fluctuations in expenditure may result from the pursuance of various social welfare objectives. However, he appears to be thinking along different lines than Black and Wicksell, in that he suggests that the incidence theorist concentrate his efforts in the area of income and expenditure analysis. Thus his position not only agrees with Black and Wicksell that the traditional approach is inadequate, but goes farther by suggesting that the direction of inquiry is not productive and should be diverted toward the "new economics" of the Keynesian School. These potent arguments demand evaluation. Holden's will be considered first.

8. Holden, Greenville, "Incidence of Taxation as an Analytical Concept", American Economic Review, Dec. 1940.

9. He wrote prior to our entry into World War II.

Analysis of Holden's Income Approach Argument. Should incidence theory be incorporated into income and employment analysis, or at least should its main emphasis be pointed in that direction? There can be no doubt that this new type of investigation is of great importance in modern economics. Further, few would question the critical role of taxation in the picture. Therefore, at a minimum it must be admitted that incidence theory should, if possible, contribute analytical tools and conclusions useful to income and employment analysis. But here the question must be asked as to how best this contribution may be made? Should the incidence theorist, disregarding most of his traditional techniques, employ those of the income analyst and turn out income models for individual taxes, groups of taxes, or tax systems? Would he by becoming merely a specialist on one phase of income theory, and in reality being nothing more than an income theorist, make his maximum contribution? The answer would seem to be negative. Studies of altered patterns of demand and supply of both products and factors and their resultant variations in price patterns, should, if meaningful conclusions can be reached, provide more useful information for the income analyst than a localized application of his own tools. The issue, at heart, is merely a part of the broader issue of the relationship between macro and micro economics. Most writers now agree that these general approaches, rather than

being competitive, can and should be complementary. The same reasoning can be applied to incidence theory. Instead of being absorbed by income analysis it should complement it, supplying useful tools of analysis and conclusions, the division of study being a useful breakdown of the field. This position possesses the further merit that the micro type of incidence analysis can answer many important questions with which income analysis is unequipped to deal. For example, the location of burdens on individuals or groups of individuals, changes in the prices of particular products or groups of products, altered supplies of productive factors, not to mention the critical control effects many taxes are expected to produce.

Analysis of the Inadequacy Argument of Black and Wicksell.

Superficially their acceptance of the classical approach, where the issue is one tax or another with yield and expenditure unchanged, seems tenable. Obviously with one variable (expenditure) held constant, study can be confined to the other (type of tax). But what of their argument that if the imposition of the tax increases expenditure both must be included? The distinction, although apparently satisfying, offers no adequate solution. In their first case expenditures are not really disregarded, but merely assumed to be fixed. Their effects are already incorporated within the existing economic pattern and thus require no further

study. Hence their position basically remains that expenditures always must be considered; but, if constant, may be relegated to a passive role in the analysis.

The central theme of the "include expenditures" school of incidence theorists is well summarized by Black. "There is, therefore, a double aspect of every tax; collection of the tax on one hand, which inflicts a burden on the taxpayers, and the disbursement of the proceeds on the other. Prima facie there is no reason to expect that one of these aspects, in the economic effects it produces, should be more important than the other. Yet, only one of these aspects, that connected with collection of the tax proceeds, has received consideration in the theory of incidence".¹⁰

This raises the critical question - are the expenditures of tax proceeds an aspect of the tax itself? Let us consider for a moment a state expenditure on the construction of new school buildings. Obviously this not only effects the educational facilities of the communities in which they are located, but also the suppliers of the materials and labor utilized and many other parties more or less proximate to the construction project. But, it is important to note that these influences result from the expenditure as such. When we inquire concerning the source

10. Black, op. cit., p. 134.

or sources of the funds so expended we might find them to be numerous and diverse. Perhaps they were obtained from a real property tax, perhaps a sales or income tax. They could have been supplied by the proceeds of a bond issue, or by the creation of new money either by sale of bonds to banks, or by literally rolling the printing presses. Any one, or combination, of the weapons in the arsenal of public fund raising devices might have been employed. Bearing this in mind, it would seem a little foolish to ascribe results of expenditure to the particular fund raising technique which was used; when any other, or combination of others, would have produced identical expenditure effects as long as the amount raised and expended was the same. Admittedly the combined effects of both expenditures and the financing technique employed will vary with the different fund raising devices which may be used. Thus, borrowing or printing money will be inflationary while taxation will not. However, such results are the effects of the combination not the expenditure itself. Hence, it would seem only logical to confine our consideration of the consequences of a particular financing device to those results which flow from the individual characteristics of said financing device,

and not to ascribe to it the consequences of the fact that financing as such, regardless of type, has taken place. In regard to taxation as a financing device Alba Lerner contends "that taxing is never to be undertaken merely because the government needs to make money payments. According to the principles of Functional Finance, taxation must be judged only by its effects. It's main effects are two: the taxpayer has less money left to spend and the government has more money. The second effect can be brought about so much more easily by printing the money that only the first is significant".¹¹ Even without holding such an extreme view of the fiscal significance of taxation one can easily appreciate that the connection between particular taxes and expenditures is very tenuous.

Our position is reinforced when we reflect that the proceeds of a tax may be directed into any of the multitudinous channels of government outlay. What the particular direction of expenditure may be is not controlled by the

11. Lerner, Alba P., "Functional Finance and the Federal Debt", Social Research, February, 1943. .

nature of the tax, but by the decision of officials regarding the use to which public funds should be put.¹² At the present time a majority of tax revenues go into general treasury funds to be allocated as legislators and administrators see fit. The consequences of expenditures flow from direction of the expenditures themselves, and could easily change if current need and public policy should so dictate. In addition, financing programs frequently relate only to the magnitude rather than the composition of the expenditure. Where tax and expenditure are jointly considered, it is only because lawmakers choose to do so - not because they have to. This is especially true when we consider that the historical evolution from "sound finance" to "functional finance" makes separate consideration of taxation and expenditures not only theoretically desirable, but plausible from a political and practical point of view.

It should be clear by this point that the effects of expenditure are not the effects of the tax providing the

12. Officials may try to link expenditures to taxes in the same economic sphere, for example, gasoline taxes and road construction. This, however, is not a necessary result of the nature of the gasoline tax, but an attempt by the lawmakers to allocate tax burdens in proportion to benefits received. Obviously this type of tax expenditure combination may produce different combined effects than those which would result were some other tax employed.

revenue, but are the consequences of the particular expenditure itself. It is neither logical nor useful to attempt to combine both into the incidence concept. What is needed, however, is a theory of the effects of expenditures, which as a separate part of the study of public finance, could well supply us with useful analytical tools and conclusions.¹³ As mentioned above the effects of tax-expenditure combinations will vary with the combinations. Therefore, in the solution of many problems the expenditure theory and incidence theory could both be employed profitably. This, however, is quite different from contending that they are the same. Somers accepts this technique as a possibility. "Finally, the use of the tax revenues, i.e. government expenditures, may be considered in deciding whether any particular tax is 'good or bad' in those cases where expenditures and revenues are closely intertwined. But in order to take account of expenditures it is necessary to break up the problem into two parts: (1) The ef-

13. Although, as Von Mering points out, no momentous results have as yet been forthcoming, this direction of endeavor is of importance to public finance, Von Mering, Otto, *The Shifting and Incidence of Taxation*, p. 6. A highly abstract approach is attempted by M. Kaleeki in his article "A Theory of Commodity, Income and Capital Taxation", Economic Journal, Vo. 37, 1937. We can only hope that in the future significant progress may be made in this area.

fect of an acquisition of the revenue, i.e. the tax itself, and (2) effect of spending the revenue, i.e. the expenditures".¹⁴

In regard to these combined study cases Von Mering holds: "All one can do is to base the argument on the total change in taxation during one year and the total change in expenditure during the same year. Now, the changes in taxation are usually heterogeneous, as are the changes in expenditure, so that, since inductive reasoning is impractical, almost every examination of the effects of taxation and expenditure combined is necessarily very unrealistic. It may be admitted, however, that the discussion of some highly abstract assumptions is of theoretical interest."¹⁵

The fundamental point at issue in this controversy should now be clear to the reader. The position of Black, Wicksell, and others who employ the same line of reasoning, is that the total consequences of the fiscal operations, of which, taxes are a part, are not disclosed until the effects of expenditures are combined with the results of the taxes. With this conclusion no reasonable person can disagree. The error in their reasoning lies in their holding that incidence conclusions cannot be

14. Somers, Harold M., Public Finance and National Income, 1949, pp. 163 - 164.

15. Op. cit., pp. 134 - 135.

effectively separated from the effects of expenditures. The foregoing analysis demonstrates that this is not the case. Should expenditures and total tax revenue remain unchanged and the type of tax be altered, incidence would vary. On the other hand, should the tax structure be constant while the composition of expenditures alters, the results would differ. Thus the results of taxation and the effects of expenditure, although closely related, are by no means unseparable, but are merely two aspects of the overall problem. It seems only logical to explore the ramifications of each separately before attempting the more complex task of synthesis. It is with the tax aspect of the problem that this treatise is concerned.

SUMMARY

The incidence of the income tax is part of the broader study of the incidence and shifting of taxes. This area of investigation embraces the economic consequences occasioned by taxation. Administrative considerations are not included since the tax as administered is the starting point of incidence analysis, and because the type of problems considered are usually very different. The effects of expenditures are excluded because their study constitutes a separate, though closely related, part of the overall result of the fiscal operations of the state.

Chapter II

DEFINITION OF TERMS

Should Incidence and Effects be Distinguished

Having outlined the scope of this study, attention can now be directed to the problem of defining terms. Although most of the nomenclature of incidence analysis is several centuries old, unanimity of professional opinion as to its utility and precise meaning has not as yet been achieved. As a result serious differences of interpretation still exist. Of these the controversy over the theoretical possibility and the practical importance of a conceptual breakdown of the results of taxation is probably the most important.

The consequences of the imposition of a tax are numerous and diverse, pervading the entire economy. Prices of many products and factors may be changed, quantities produced and consumed may vary, patterns of consumption and income distribution may well be altered, just to cite a few examples. Many writers prefer to treat these consequences in whole or in part as a single category in their tax analysis. For example, Edgeworth in his paper on Urban Rates says that "incidence here denotes all those effects of taxation with which the economist is concerned."¹

1. Edgeworth, F. Y., Papers, Vol. II, p. 151.

Black follows the same line. "The incidence of a tax is the group of economic effects which it brings into existence."²

Other writers break down the consequences into a number of categories. The heart of this breakdown is found when they demarcate those consequences which they call "incidence" and those which are termed "effects".³ The usual distinction is that money burden on the ultimate taxpayer is called incidence, while other consequences are called effects. This differentiation of consequences is usually justified as a "demarcation of the subject",⁴ or a division for analytical purposes, or merely as a "first approximation".⁵

Regardless of the refinements which particular writers make in their definitions the issue remains whether or not to subdivide the consequence of taxation. This question resolves itself into two others: Is the breakdown feasible and is it useful?

In the more extreme cases, naturally, a distinction between incidence and effect is not difficult. Obviously changes in the capital structures of corporations occasion-

2. Black, op. cit., p. 123.

3. The terms, impact, shifting, etc. deal with the process by which the consequences unfold, the incidence - effects division treats the consequences themselves.

4. Von Mering, op. cit., p. 3.

5. Somers, op. cit., p. 148.

ed by corporate income taxation should be considered effects, whereas the burden of a poll tax would be identifiable as incidence. This, however, is not helpful in the more common cases where both issues of burden and effects are to be found. Even Sommers, who adopts the distinction and approximation, points out that "there is almost complete overlapping between these two aspects of the problems since it is impossible to decide where the tax rests without knowing its effects on such items as production, consumption, saving, etc., and it is impossible to know what the effects are without knowing something of the shifting of the tax. As a result the term, 'incidence', is broadly defined. In a broad definition of this sort, the definition of economic effects becomes practically identical with that of incidence."⁶

While reserving detailed discussion of particular definitions to a later point in the analysis, it should be noted that most concepts of incidence and effects are quite broad and vague. Thus substantial overlapping, resulting in confusion, occurs when any application is attempted. Hence, it is hard to disagree with those who feel that sharp distinctions as usually drawn cannot do other than hinder clear thinking.⁷ However, the reluctant acceptance

6. Somers, op. cit., pp. 147 - 148.

7. Somers cites Benham to this effect, op. cit., p. 148.

of such a viewpoint does not answer the question, is the breakdown feasible? The inadequacies of past definitions, which attempted the incidence-effects distinction, do not prove that they lacked utility nor that reformulations would be insufficient to overcome their shortcomings. While broad and fuzzy definitions may lead to overlapping and obscurity, more precisely delineated concepts might not. Before dwelling further on this possibility let us consider whether the search for a reasonable breakdown is of sufficient utility to justify the effort.

Cannon holds that the use of the term incidence as distinguished from effects is definitely harmful. "I have no doubt that it is desirable to eschew the use of the term 'incidence' of taxation. It unduly restricts inquiries into the justice and expediency of taxes, since it is always held that the real incidence of a tax is upon the persons who ultimately pay or provide the money for the tax. But, persons who pay a tax are often less injured by its imposition than those who pay no portion of it. The man who goes two miles out of his way daily to avoid a bridge toll would be more benefited by the freeing of the bridge than most of those who pay the toll. It is, therefore, far better to consider the effects of taxation".⁸ Even if Cannon were correct in contending that excessive

8. Cited from Black, op. cit., p. 123.

attention had been directed toward the analysis of money burdens with a consequent neglect of significant effects, such as the two mile hike to avoid the toll, this does not condemn the use of the term, "incidence", as distinguished from effects. It merely reprimands unbalance in the emphasis accorded the various aspects of the problem. A thorough analysis of the consequences of a tax would certainly consider important effects along with money burden problems.

The foregoing argument supports the conclusion that the wisdom of any incidence-effects breakdown depends on the purposes for which the concepts are to be used. Are the problems of those interested in tax matters of such a nature that two analytical tools would be more useful than one? The answer to this question can only be found in a consideration of the nature of these problems.

Of central importance in considering any tax is the issue of how the economic position of those upon whom it is levied or to whom it is shifted is altered. It is to these alterations of economic position that primary reference is made when the great moral issue of justice in taxation is discussed. Conclusions pertaining to the justice of a tax, whether predicated on an "ability to pay" or "benefits received" standard almost invariably are applied to what is referred to as the "money burden" or incidence of a tax. Since no general textbook on taxation would be

complete without considering the issue of justice, and since none, to this writer's knowledge, has ever omitted it, obviously the concept of incidence has been employed as an important educational device. By similar token, since almost all specialized treatises on justice in taxation employ it also, it is apparent that an academic function has been performed. Most statistical investigations in this area have been incidence oriented, and the conscientious citizen or legislator seeking an equitable distribution of taxation cannot fail to focus his attention in this direction.

This interest is not confined to those who are personally detached from the economic influence of the tax or taxes in question. Those groups upon whom the "incidence" falls or might fall exhibit most profound concern, and this concern relates most frequently to specific taxes levied upon them or shifted in their direction, rather than more remote consequences. It is by no means uncommon to find associations of property owners motivated to active opposition by proposals to finance municipal improvements by increasing real estate taxes. Congressional hearings on important tax legislation, such as an excess profits tax bill, bring to light a most widespread pre-occupation with incidence or burden. Representatives of business pressure groups are, to put it mildly, vocal in their denunciation and prolific in their suggestions for substitute taxes, the

"incidence" of which they believe would not fall upon their clients. Organized labor strongly favor an excess profits tax, as a source of public revenue, since they feel certain that the burden falls on business rather than labor; and alternative sources of revenue might be lower personal income tax exemptions, increased sales taxes or excises which labor would have to bear in the first instance at least. Small business is present to argue that exemptions be sufficiently large so that its interests be unaffected, while agriculture maintains a constant vigil lest tax burden be imposed in its direction. Thus it is clear that in actual use a concept of burden enjoys wide popularity. Admittedly at many points, "effects" considerations are collaterally or simultaneously employed. Thus the incidence concept actually is diluted and its use becomes confusing. However, as ordinarily encountered, two questions are paramount: "Who pays the tax?" and "What other things result?" An incidence concept is the working tool, however crude, employed in answering the former.

In regard to the latter question pertaining to other consequences of taxation, what things are of importance? The reply could be phrased generally as the effects on the economy other than the incidence itself. This would include changes in prices, costs, production, consumption, resource utilization and conservation, and in fact any other signifi-

cant alteration in the economic pattern.

These consequences could be classified as intended and unintended. By intended consequences is meant the results of effective utilization of taxation for purposes of social control.⁹ Although employing taxation in this manner is by no means new, it has gained stature in recent years. This is especially true of the expansion of federal police power. Even though the Federal Government has no police power as such, it can use its express powers, such as the tax power, for policing purposes. An important early example is found in the tax on state bank notes which accompanied and made effective the improvements in bank note issue contemplated in the National Banking Act. More recently a payroll tax, ninety percent of which is rebated to the States, compels state compliance to the Federal standards in the field of unemployment compensation. Luxury excises can seek the restriction of superfluous consumption patterns, especially in war time, as well as fulfilling revenue objectives. Although not necessarily in the police power area, protective or equalizing tariffs obviously look to control in addition to, or instead of, revenue. Since taxes are frequently used to achieve social control objectives, it is of importance to those who sought their im-

9. Groves refers to this as taxation for non-fiscal purposes, op. cit., p. 37.

position, regardless of their selfishness or benevolence of motive, to evaluate the way in which they perform. Thus the control effects of taxation should be analyzed so as to understand and improve taxes as regulatory devices.

Unfortunately, control effects are not confined to taxes intended to control, and the effects of the latter type of tax are not limited to the desired controls. Taxes levied for revenue purposes only can, nevertheless, be profound directive forces in the economy. The community may drastically reduce its consumption of a highly taxed commodity, thus injuring those who manufacture and distribute it even though the advocates of the tax neither sought to curtail its sales nor injure those who earn their livelihood therefrom. A property tax on standing timber may cause premature and otherwise uneconomic cutting, thus wasting a vital natural resource, even though no such result was contemplated.¹⁰ An overly burdensome business tax structure may discourage new concerns from entering an area and even induce established firms to migrate elsewhere, despite the fact that only a deranged mentality would desire such an eventuality. Excessive surtax rates may discourage risk taking, depressing the level of economic activity and thwarting progress although few except Communists and other enemies of the nation would derive satisfaction

10. National Lumber Bulletin, June 7, 1925.

in the process. A liberal, supporting what he thought to be an equalitarian tax measure, might in reality be lending comfort to monopoly if the tax bore more heavily on small than large business.

It is apparent that all taxes control with what Commons calls "the most pervasive and privileged exercise of the police power".¹¹ Some of these regulatory effects are intended and should be analyzed as such, as recommended above, while those which are unintended cannot be relegated to a secondary position without running serious risk of major inadequacy of treatment.

Thus it is easily demonstrated that the effects, both intended and unintended, of taxation in addition to incidence or burden considerations are of vital moment in tax analysis. Further it is clear that they deal with the issue of "what happens, what things are changed", rather than "who pays or suffers". It follows, that the effects concept is oriented toward answering somewhat different types of questions than is incidence, although both are interwoven in the reality of any real tax situation. Hence, when the consideration of common usage of incidence is weighed, the utility of the incidence-effect breakdown, if feasible, becomes apparent. The breakdown is a logical

11. Commons, John R., Institutional Economics, p. 820.

division of the subject adapted to clarify the way in which this area of analysis is or can profitably be employed.

Were only a single concept utilized it would be conducive to improper placing of emphasis on the different aspects of the tax problem. Those primarily interested in burden might relegate the effects aspect to an unjustifiably secondary role, while those concentrating on effects might all but ignore consideration of burden and justice.¹² Thus the breakdown possesses the additional merit of pointing up both aspects of the problem.

It is hoped that definitions of incidence and effects can be developed which may realize the advantages of this breakdown without being guilty of excessive overlapping and obscurity which would viciate their utility. Perhaps as Von Mering suggests "unequivocal definition is necessary only in order to clarify concepts which are to be used as tools of analysis".¹³ However in the light of what has already been said it would be very useful to have our tools cut as cleanly as possible when employed by the practitioners of public finance. One would expect that in a field which has commanded professional attention for so many years a set of unequivocal analytical tools would by now

12. Somers holds that considering only effects would be "like discussing the effects of an operation without knowing just what part of the body has been operated on". Op. cit., p. 103.

13. Op. cit., p. 2.

have been developed, or be well on their way to development. Unfortunately this is not the case. Even though most writers disregard expenditures and employ the incidence-effects breakdown, their definitions of analytical tools are usually either vague, scanty, or ambiguous. This would not be serious if there were substantial agreement, except in a more general sense, regarding what was really meant. But this, too, is not the case.

As a first step toward a formulation which will be satisfactory for the purpose at hand, leading definitions now in use will be reviewed.

Analysis of Popular Definitions

The Definition of Impact. Seligman defines impact as "the immediate result of the imposition of the tax on the person who pays it in the first instance".¹⁴ He stressed the impinging of the tax on somebody or something. Thinking along the same line Von Mering cites Pantaleoni's definition "If there is no evasion, the tax will be collected from those upon whom it is levied. By impact effect is meant the direct and immediate effect upon those who are legally responsible for the payment of the tax".¹⁵ Both of these definitions indicate the point of impact as the

14. Seligman, Edwin R. A., op. cit., p. 2.

15. Von Mering, Otto, The Shifting Incidence of Taxation, p. 2.

point of payment of money to the government. Pantaleoni's words "legally responsible for the payment" indicates that they (he and Von Mering) implicitly assume the person upon whom the tax is levied and the person who turns over to the government to be the same. Although over most of the history of taxation this condition was realized in fact, recent developments in the field of tax collection render it frequently invalid. Today the employers are required to deduct income and social security taxes, legally imposed upon the employee, from the employee's pay. Many sales and excise taxes levied upon the consumer are collected by the seller acting as a collecting agent for the government. In these instances, obviously, the party who makes remittance to the government is not the one against whom the taxes are assessed. For the above reason Somers defines impact as "the point where the tax is imposed by law,"¹⁶ thus avoiding any doubt in instances of the type just mentioned. Choosing the point of legal imposition rather than payment of funds has the merit of eliminating such phenomena as payroll tax withholding and charging for sales tax stamps from the analysis of shifting.

It is this definition of impact which shall be employed in the following analysis. Although it is probably obvious, the amount of impact is the amount of the

16. Somers, Harold M., op. cit., pp. 149 - 150.

tax. For reasons detailed in an earlier section any administrative costs connected with process of tax collection, whether by government or private parties, are excluded from the analysis.

The Definition of Incidence The Colwyn Committee felt that incidence meant to the economist "the more immediate burden of the tax as a tax rests".¹⁷ This definition seems to establish a most equivocal time rule for classifying the consequences of taxation.¹⁸ Seligman looks to no particular time period but to terminal burden as the standard. "There is but one kind of incidence, which emerges only when the tax finally settles, or comes to rest, on the person who bears it".¹⁹ Von Mering in citing Pantaleoni takes the same position, "Incidence of tax - this is the final burden".²⁰ This is, of course, essentially a long run viewpoint, incidence thus being the burden as distributed after all shifting (which may well involve re-allocation of productive resources) has taken place.

Somers breaks down the shifting and incidence con-

17. Report of the Committee on National Debt and Taxation, p. 106.

18. Black points out the deficiencies of this definition, both in conception and application, and spells out what he thought the Committee really meant. Black, op. cit., pp. 31 - 33.

19. Seligman, op. cit., p. 2.

20. Von Mering, op. cit., p. 3.

cepts along Marshallian lines. He distinguishes market period incidence, short-run incidence, and long-run incidence, pointing out that it is of interest to know who pays a tax on goods on a merchant's shelves or on the variable output of a given plant as well as those who pay after all adjustments have been made.²¹

The attractiveness of this proposition is apparent when we consider that a great many important problems in the field of public finance are of a market or short run character, and that the ever changing variables of the real world compel us to confine our long run adjustments to the role of tendencies. The utility of his position is reinforced when we consider that market or short run incidence is really final incidence for the period involved. The merchant, who because of market conditions cannot raise his price when a tax is imposed upon some of his wares, shifts the tax by reducing his subsequent purchases and/or buying prices of those goods. But he bears the burden of the tax on stock goods on hand. Similarly the producer whose output has been restricted by a tax on his product bears the burden until plant capacities or number of participants in the industry have been altered.²²

21. Somers, op. cit., p. 155.

22. This, of course, assumes competitive conditions. Should oligopolistic or monopolistic conditions prevail shifting could be immediate.

Thus in either market or short run the period incidence may be final. An unrecoverable loss is suffered which persists until shifting takes place. Shifting does not eliminate the losses which have been sustained, it prevents the bearing of future burdens. Should a monopolistic firm fail to maximize profits before the levying of a tax for policy reasons, it might raise prices subsequent to the tax sufficiently to recoup the short run or market loss.

Thus we see that incidence usually means the burden of the tax upon those who actually pay, and is referred to over various time periods. But to what burden does incidence pertain? Here almost unanimous voices of traditional writers respond "money burden",²³ and this money burden is considered to be equal to the tax proceeds accruing to the government.²⁴ Seligman is clear on this issue. "As Natoli well points out, there can be no incidence without a corresponding revenue to the treasury".²⁵ He develops the concept "pressure" of taxation to cover additional losses to parties involved.²⁶ Von Mering appar-

23. For example, Groves defines incidence as the "ultimate money burden of a tax", op. cit., p. 102.

24. Obviously this is not the case of those who, such as Black, include all of the consequences of taxation under the term incidence.

25. Op. cit., footnote 2, p. 12.

26. Op. cit., p. 11

ently takes the same view when he considers the excise tax losses over government revenue in a chapter entitled "Problems of General Repercussions of Taxation".²⁷ Although other writers typically do not deal directly with this point, apparently their thinking runs along the same lines.

The degree of remoteness from the impact point of those sustaining the "money burden" does not seem to limit the incidence concept. Since almost all writers consider forward, backward, and/or onward shifting, and since usually no limit is imposed upon the number of shifts which may take place, the final point of incidence may be quite distant from the point of impact.

The traditional view can be fairly well summarized as money burden, equal in amount to government receipts, considered over relevant time periods, and not limited by remoteness from impact.

The Definition of Shifting There is substantial agreement as to what is meant by shifting. Seligman defines it as "the process of the transfer of a tax".²⁸ Von Mering again cites Pantaleoni: "Shifting of the tax: through suitable price changes the payer succeeds in avoiding all or

27. Von Mering, op. cit., Ch. VII, pp. 124 - 126.

28. Op. cit., p. 1

part of the tax burden".²⁹ Somers calls it "the process of forcing someone else to pay the tax".³⁰

The extent of shifting is measured in terms of price changes. This is implicit in Von Mering concept and application. Seligman in considering a tax between buyer and seller contends: "If the price is raised, we say that the tax is to that extent shifted".³¹ He amplifies this position: "Whatever these relations may be, the essence of the inquiry is are prices raised, and if so, to what extent are they raised? Whether we deal with the prices of consumable commodities, of capital, or of labor, this is always the nature of the problem".³²

There is agreement that shifting may go both forward, toward the consumer, from the impact point and backward, toward the agents of production. Seligman employs the terms, forward, backward, and onward,³³ the latter referring to successive shifts toward the consumer. Most writers confine their classification to forward and backward shifting, including thereunder successive shifts in either direction.³⁴

Shifting is envisioned as taking place through the

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29. Op. cit., p. 3.
30. Op. cit., p. 150.
31. Op. cit., p. 11.
32. Op. cit., p. 219.
33. Op. cit., p. 3.
34. See Groves, op. cit., p. 151.

various periods of the process of economic adjustment, market, short run and long run. This sequential analysis was emphasized by Fagan and Jastram and is currently in general use.³⁵

The reason shifting can occur is explained in terms of altered variables in the pricing mechanism. Seligman holds "that the theory of the shifting of taxation is a part of the wider theory of value".³⁶ Von Mering states his reasoning in more explicit language "With some diffidence, I submit the following proposition as a common denominator for all processes of tax shifting: whether and to what extent taxes may be shifted depends on the degree to which supply and demand may be restricted with advantage".³⁷ Whether or not shifting is intentional or conscious is not material. If an individual reacts to a tax by altering prices, he is shifting regardless of his motives or awareness.³⁸

Finally there is agreement that capitalization or amortization, although closely related to shifting, is not part of the shifting process.³⁹

In summary, we can describe the traditional view of

35. See Groves, op. cit., pp. 108 - 114.

36. Somers, op. cit., pp. 151 - 154.

37. Op. cit., p. 21.

38. See Von Mering, op. cit., p. 4.

Groves, op. cit., p. 101.

39. See Seligman, op. cit., p. 5.

Groves, op. cit., p. 103.

Von Mering, op. cit., p. 95.

shifting as the transfer of the tax burden, by means of price changes which are advantageous, and which are the measure of the extent of the shift. Shifting may be forward or backward, and successive shifts are quite possible. Shifting must be analyzed in terms of market, short run, and long run. Intent is not relevant and capitalization is not shifting.

The Definition of Effects Seligman says that by effects of taxation we may mean two things. "In the narrower sense, it denotes the immediate consequence of each of the above mentioned steps. Thus shifting is an effect of impact, incidence is an effect of shifting, and the pressure of a tax is an effect, in turn, of the impact and of the shifting as well as the incidence. In the wider sense, effect denotes any of the subsequent results of taxation. A tax may have a great many effects. It may diminish industry and impoverish individuals; it may stimulate production and enrich individuals; it may be an unmitigated curse to society; it may be a necessary evil; it may be an unqualified boon to the community regarded as a whole".⁴⁰ Obviously it is the latter sense in which he desires to employ the term, and he means consequences other than shift-

40. Op. cit., p. 14.

ing and incidence. However, Seligman, more than any other writer specifically categorizes many particular types of effects. The list includes capitalization, transformation, evasion, pressure of the impact, pressure of shifting, and pressure of the incidence, all which leaves the word effects, when used alone, to refer to remote results.⁴¹

Von Mering considers all consequences of taxation under the term effects and subdivides these effects into impact, shifting, incidence and further effects.⁴² The latter, of course, refers to effects in the sense implied in the incidence-effects breakdown. These further effects are "those which follow the placing of the ultimate burden on certain persons or groups".⁴³ Since he is not attempting tight definition, it must not be assumed that he is excluding consequences collateral to impact and shifting. Nevertheless, his statement that "the effects which follow from the moment of impact of a tax until the ultimate incidence of that tax constitute the subject matter of the theory of tax shifting",⁴⁴ is confusing in view of his previous use of the term effects to cover impact, shifting and incidence. However, it is evident that he means to use the term effects as distinguished from incidence in

41. Op. cit., pp. 5 - 12.

42. Op. cit., pp. 2 - 3.

43. Op. cit., p. 3.

44. Op. cit., p. 3.

approximately the same manner as Seligman.⁴⁵

Somers follows Silverman viewing effects as "the ultimate economic condition to which a tax gives rise".⁴⁶ Although tight construction might lead us to believe that he would exclude transitional consequences other than incidence and shifting, his development of the subject indicates that this is not the case. As has already been noted, Somers is not attempting rigorous definitions but rather approximations for purpose of analysis.

Groves views an effect as "an economic consequence collateral to the incidence or too remote from the imposition to be rated as a part of the money burden of the tax".⁴⁷ He, too, is thinking along the same lines as the other writers, although the "too remote" point would require qualification if precision were attempted.

Both Seligman and Von Mering, while admitting their general importance, consider the problem of effects as secondary in this type of analysis. Seligman contends, "They can, however, not be successfully attacked unless we previously solve the question of shifting and incidence, the problem par excellence is that of shifting and incidence".⁴⁸ This conclusion seems unjustified in view of

45. His chapter on Problem of General Repercussion of Taxation reinforces this view.

46. Op. cit., p. 147.

47. Op. cit., p. 102.

48. Op. cit., p. 14.

what has been said above regarding the regulatory effects of taxation. Von Mering holds that further effects (those beyond incidence) are no part of the theory of shifting, but this does not, in his opinion, prevent their consideration if the occasion demands.⁴⁹

Although more recent writers usually attempt concurrent analysis, if possible, shifting and incidence still hold star billing. This is probably because of the higher degree of development of shifting and incidence theory.

Despite minor variations and discrepancies the same idea emerges in all of the writings. Effects of taxation are those consequences other than incidence, and they are usually accorded less comprehensive treatment.

Summary of Popular Definitions Before proceeding to the definitions to be employed in this study, it would be helpful to remind the reader of the consensus of currently popular definitions. Impact is usually defined as the direct and immediate effect upon those who are legally responsible for the payment of the tax. Incidence ordinarily means money burden, equal in amount to government receipts, considered over relevant time periods, and not limited by remoteness from impact. Shifting refers to the transfer of the tax burden, by means of price changes which are

49. Op. cit., pp. 3 - 4.

advantageous, and which are the measure of the extent of the shift. Shifting may be forward or backward, and successive shifts are quite possible. It also must be analyzed in terms of relevant time periods. Finally effects are customarily viewed as consequence other than impact, shifting, and incidence.

Definitions Employed in this Analysis

Statement of Definitions It can now be seen how the terms incidence, shifting and effects are employed by leading writers of the traditional school i.e., (those who disregard expenditures and employ the incidence-effects breakdown). The time has come to state the way in which these terms will be used in this dissertation. Our objective is to retain that which is useful from current usage, but strive for greater precision and usefulness. Hence, the analysis will not be confined to a mere statement of definitions, but will discuss in detail exactly what is meant by each concept. The definitions are as follows:

I. Incidence - the economic loss, not necessarily equal to governmental receipts, suffered by those upon whom a tax is levied or to whom it is shifted.

II. Shifting - that part of the process of adjustment to the imposition of a tax whereby the loss occasioned by the tax is distributed among those who will bear it.

This process of loss distribution is confined to the productive process. The consequences of altered consumption expenditures by tax bearers are excluded from this shifting concept.

III. Effects - all other economic consequences of a tax with the exception of incidence and shifting.

To elucidate the intended meaning of these concepts a series of important issues will be discussed. Most of the illustrations will pertain to more than one concept. Therefore, we shall proceed by issues rather than developing each successive definition separately.

The Issue of Proximity The point, or points, of incidence of a tax may be coincident with, proximate to, or remote from the point of impact. This is the same as saying that a tax may be unshiftable, shifted only once or a few times, or shifted many times before it reaches those who finally bear the incidence. Thus our concepts impose no theoretical limit on the number of times a tax may be shifted, nor on the degree of remoteness of the incidence from the impact. In actual application this imposes no difficulties as long as the succession of shifts can be traced with reasonable accuracy. However, if series of shifts becomes very extended, and the burdens widely diffused, this may not be feasible. Under such circumstances expediency

might dictate that exceedingly remote and diverse consequences, although theoretical, still incidence and shifting, must be considered as effects, if they are discernable at all. Such an approach would be a concession to practical difficulties, not an attempt to evade the analytical problem. Groves probably had this in mind when as part of his definition of effects he includes consequences too remote to be considered as incidence.⁵⁰ Needless to say the shifting process may go both forward from the impact toward the consumer or backward toward the agents.

The Issue of Time Periods Our analysis will follow the traditional Marshallian pattern, considering shifting and incidence in the market period, short run and long run. This procedure takes on added significance in the light of what has been said above on this point.⁵¹

The Issue of the Extent of Incidence Natoli says "there can be no incidence without a corresponding revenue to the government". Seligman explicitly agrees and calls other losses "pressures".⁵² Von Mering, as has been noted above, implicitly concurs, as apparently do most other writers. This is purely a matter of definition and must be resolved by the test of utility.

50. Op. cit., p. 102.

51. See p.

52. Op. cit., p. 12.

In Figure 1, D, M R and M C, represent the demand, marginal revenue, and marginal cost schedules of a monopolist. Under these circumstances the price will be M P and the output O M. The monopolist's profit is E F C and the consumer's surplus is E P B.⁵³ Now let a tax of T C per unit of output be imposed upon the product. The marginal cost schedule including the tax now become M C^t. Price becomes N P^t and output O N. Profit becomes E G T and consumer surplus E P^t A. T C H G is the revenue collected by the government. Since price has risen by half the amount of the tax⁵⁴, Seligman who measures the extent of the shift by the amount of the price raise⁵⁵ would conclude that half of the incidence (T C H G the tax take) is upon the consumer, and half upon the monopolist.

Yet the loss to consumers, A P^t P B is greater than the incidence Seligman would impute to them by P^t P J (25% as the example is constructed), and the monopolist's

53. The measurement of consumer surplus concept has been the subject of considerable controversy. There are many who contend that it cannot be measured at all, while others advance certain particular techniques which they feel have exclusive claim to correctness. The method here employed, area under the demand curve and above the price line, is the most widely used, but it could be subjected to much criticism. It is employed solely because it serves well as a demonstrative device, not because of any great theoretical merit it might or might not possess.

54. This is occasioned by the way in which the curves are drawn in this example (lineal demand and constant cost functions).

55. Op. cit., p. 11.

loss T G F C, much greater (150%) than the incidence Seligman says he bears. The total loss is almost twice (1 7/8) the amount of the tax revenue produced. These extra losses Seligman calls "pressure of taxation".⁵⁶

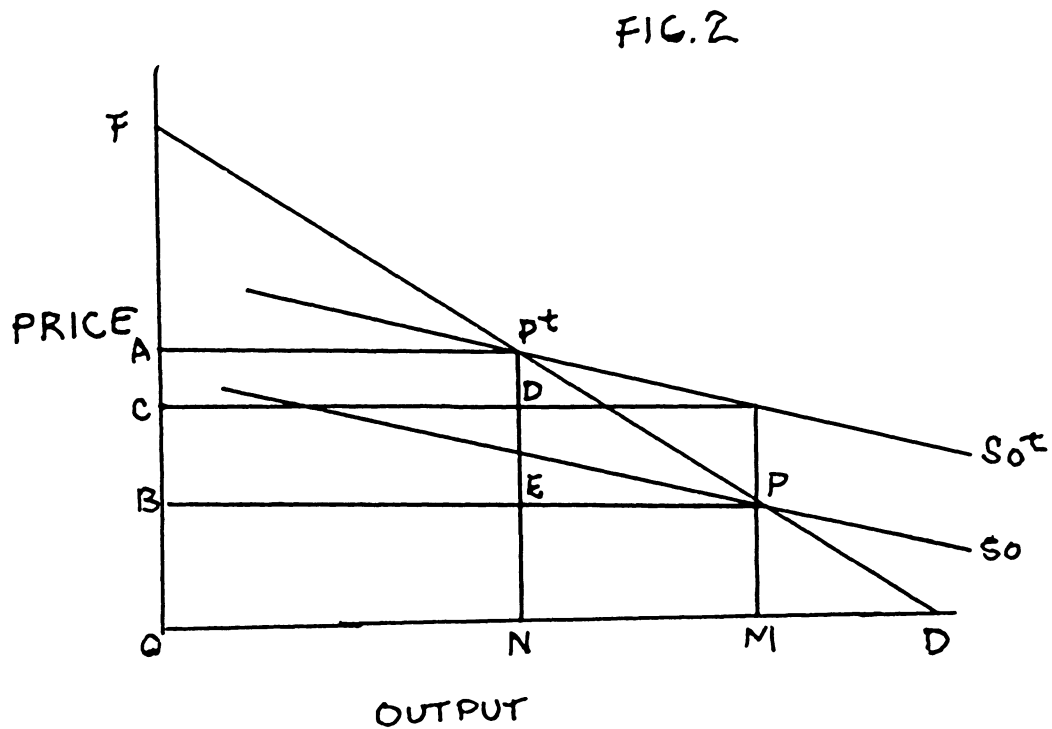
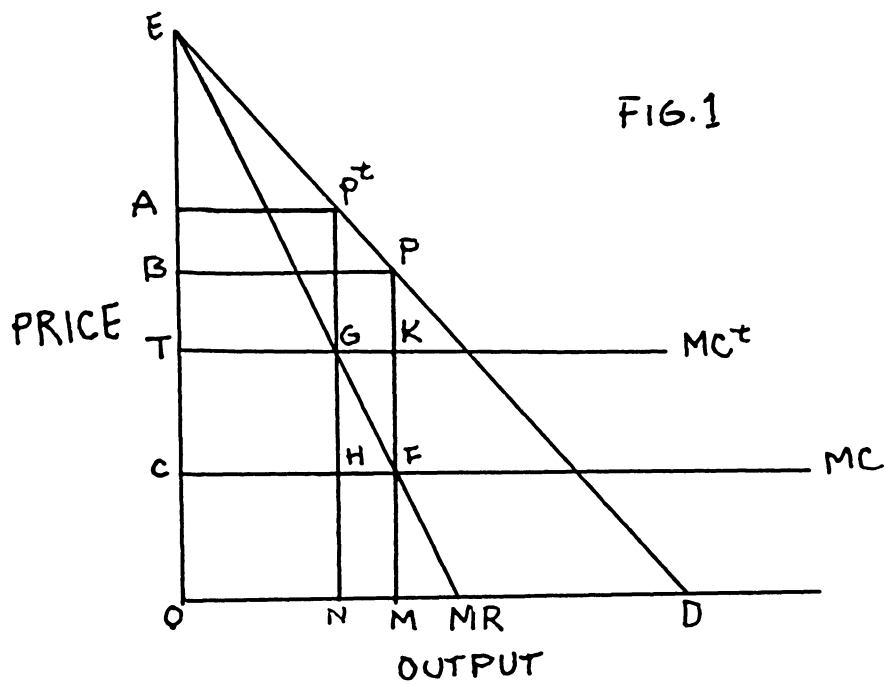
In Figure 2, D represents the demand and S o the long run optimum costs schedules for a decreasing cost industry operating under perfectly competitive conditions. Price is M P and output O M. If a per unit output tax of B C is imposed upon the product, the long run cost schedule becomes S o t, and after all adjustments price becomes P^t and output O N. The government collects C D E B which is considerably less than the loss of consumer surplus, A B P P^t, because price has risen by more than the amount of the tax.⁵⁷

This extra loss Seligman also considers "pressure of the incidence," and chides Bastable for including it under incidence.⁵⁸ Although even more dramatic examples of extra loss could be adduced, especially in cases of backward shifting, the issue is abundantly clear. Losses occasioned by taxes are frequently greater than tax receipts and their classification is at issue. Seligman contends "That

56. Op. cit., p. 11.

57. Use of measurements of consumer surplus do not detract from the validity of the argument at this point since the same conclusions can be reached through the use of indifference curves. See Joseph, F. M., "The Excess Burden of Excise Taxation", Review of Economic Studies, Vol. VI, 1939.

58. Op. cit., p. 12.



there is a distinction between the incidence of a tax and the pressure of the incidence is obvious. The incidence of a tax marks the final payment by the tax bearer. Ordinarily, the burden upon the tax bearer is equal to, or measured by, the amount of tax he is called upon to pay." 59

In regard to the latter statement, Seligman assumes a heavy burden of proof which he does not attempt to sustain. In fact in the field of income taxes, as we shall develop more fully later, an exact correspondence of economic loss and government receipts would be the exception rather than the rule. The only thing obvious in the area of Seligman's distinction between incidence and pressure of incidence is that receipts of government and total loss frequently do not coincide. Of what use is such a distinction of incidence and pressure of incidence? Certainly to the bearer of the tax burden, if he were conscious of it at all, there would be little consolation in knowing that part of his loss was incidence, related to price change times post tax volume, and the rest some excess occasioned by the tax. In our monopoly example, the proportion of what Seligman calls incidence to total loss was substantially higher for the consumer than for the

59. Op. cit., p. 11.

monopolist. But only a spiteful soul would derive comfort from this since the division of Seligman's incidence depends upon an arbitrary definition. From the point of view of the policy maker excesses of losses over receipts are of significance both from the point of view of non-wasteful financing and efficient social control. But it is the relation of losses to receipts, not the names given various parts of the losses, which is crucial.⁶⁰ Only in statistical investigations, which try to discover the broad allocations of tax burden economy is the incidence-equals-receipts formula necessarily employed, and here only because methods are not sufficiently developed to measure excess losses, necessitating their exclusion.

It should be apparent by now that no valuable purpose is served by restricting the incidence concept to the amount of government revenue. Therefore no such restriction is made in the definition of incidence employed in this study. Incidence is the total economic loss, whether its monetary value coincides with the tax take or not. The search for that will-o'-the-wisp concept, "money burden" equal to tax revenue, which has diverted tradi-

60. The breakdown of these losses into two categories would, for those uninitiated into the technicalities of public finance, only make understanding more difficult while making no contribution to either layman or specialist.

tional thinking from the central issue for so long, will not be continued here.⁶¹

The Nature and Limitations of the Shifting Process Modern writers usually associate shifting with the pricing process. It has already been pointed out that Seligman considers this to be the core of the problem, and that he develops his analysis in the manner of the classical tradition.⁶² Von

61. It is not difficult to understand why the traditional "money burden" concept has enjoyed such widespread popularity. It has already been pointed out that the incidence concept is employed to answer the question, who pays the tax? It is quite natural that the quantitative answer should be phrased in terms to the amount paid to government. But as we have demonstrated in the last few paragraphs, in many instances (almost all of which involve shifting) a demarcation of "money burden", so defined, from total tax losses is possible only if arbitrary and useless rules of classification are employed. An interesting problem in the application of our definition presents itself in the case of a worker who loses his job as a result of a tax. Is his loss of income part of the tax incidence? Here two possibilities must be examined. If the man is re-employed at a lower wage, then the wage differential which he loses is part of the incidence. In fact, this result is to be expected if backward shifting occurs. If, on the other hand, he remains unemployed, his total income loss is not part of incidence because the reason for his inability to obtain re-employment is not occasioned by the tax but by other economic facts such as rigidities or monetary disturbances. Therefore only the wage loss which would be suffered if he were re-employed, the rigidities and monetary disturbances being absent, would be a part of incidence.

62. He did, however, qualify the conclusions of pure theory when making application to the affairs of real life, op. cit., p. 220.

Mering, in search for a "common denominator" for all processes of tax shifting, looks within the pricing mechanism when he proposes the criteria, "whether and to what extent taxes may be shifted depends on the degree to which supply and demand may be restricted with advantage. Such a statement would include the monopoly case since supply may be elastic while at the same time it would not be to the advantage of the monopolist to restrict supply".⁶³

With the validity of both of these essentially similar approaches it is difficult to really quarrel. That prices and profitable restriction of supply and demand are involved is beyond question. In fact a sequential relationship exists between them. Prices change in response to a tax because it is advantageous and possible to alter (not just restrict) supply and demand. But why is it advantageous to alter supply and demand? To answer this question attention must be directed toward the forces which determine the equilibrium of the economic unit.

When a tax is levied upon an individual or business, a new variable enters into the determination of economic equilibrium of that individual or business. As a result the new equilibrium differs from the old. This can manifest itself through either an alteration of the supply of

63. Op. cit., p. 21.

commodities or productive services offered, or by a change in the demand of the individual or of a business for commodities and services, or both. These changes may be either qualitative or quantitative. For example, an individual subjected to a tax may not only reduce his overall demand for goods, but may also change the composition or pattern of his demand. The new equilibrium of the unit, subject to tax, changes the conditions of equilibrium for other units, thus altering their equilibria. It is by this process of successive adaptation to the new variable, imposed by the tax, that the consequences of the tax spread throughout the economy.

An example should help clarify this point. In the monopoly case, illustrated in Figure 1, the per unit of output tax adds a new variable cost directly proportional to the amount produced. As a consequence the conditions of equilibrium are altered. MP is no longer the most advantageous price, and OM ceases to be the most profitable output. Thus, with the tax imposed, the monopolist maximizes his gain by restricting his output to ON and raising his price to $N P^t$. To the buyers of the product the increased price represents a new condition in their equilibrating process so that they in part discontinue consumption of the monopolist's product. Since the elasticity of demand in the relevant range of our example is

greater than unity, total expenditures on the tax product are reduced, which means increased expenditures elsewhere. Thus the qualitative pattern has changed. Through a succession of altered conditions of equilibrium and the maximizing responses, the consequences of the tax are diffused and spread through the system.

Obviously what has just been described is the entire process of adaptation, the core of which is altered conditions of equilibrium. However, if we were to consider shifting to be coincident with it, in many instances no distinction between incidence and effects would be possible. Therefore, we must inquire as to what part of this process it is worthwhile to consider as shifting. Von Mering criteria, profitable restriction of supply or demand, is of little help since supplies and/or demands of the new (after tax) equilibrium are necessarily more advantageous than the supplies and demands of the pre-tax situation would be after the tax is imposed. This is inherent in the new condition being one of equilibrium.⁶⁴

Since no other analytically pure criterion suggests

64. In our monopoly example Fig. 1 the monopolist is not as well off with the price $N P^t$ and output $O N$ after the tax as he was with price $M P$ and output $O M$ before. But after the tax he is much better off with $N P^t$ and $O N$ than he would be with $M P$ and $O M$ or any other price or output.

itself we are compelled to distinguish shifting by definition. Here again usefulness must govern our choice.

Two bases of distinction appear to possess significant utility. In the first place the concept of shifting should be confined to the productive process. As economic losses move throughout the system those who bear the losses as individual income recipients either reduce their consumption or alter its pattern. This naturally influences the industries supplying them with consumer goods. Some are benefited but most are adversely effected. However, if the tax is not large, the magnitude of the changes so induced is likely to be so slight as to make these influences unidentifiable. This is primarily due to the wide dispersion of consumer expenditures. Further unless the tax bears chiefly upon a group with a unique consumption pattern, the little overall change in the composition of consumption can be anticipated.⁶⁵ The tax would merely exert a generally depressing influence. Since the purpose of our incidence and shifting concepts, as distinct from the effects concepts, is to locate burden, it is only logical to terminate the shifting concept at the point where the consequences emerge from the

65. Should the tax bear heavily on one group, such as high income tax rates on the wealthy, the important consequences upon industries supplying the group could well be considered as effects.

productive process and confer loss on participants therein. That incidence will produce further consequences is obvious, but to use the term shifting to designate the sequence of events responding to altered consumption would only serve to create confusion.

However, if a loss bearer in the productive process should also diminish the amount of his savings this would fall within our definition. A decrease in the supply of saving tends to increase the rate of interest thus reducing the loss.⁶⁶ While changes in consumption deal with consumption rather than production, variations in saving refer to variations to productive agents supplied and thus are within the productive process.

It is evident that an arbitrary line of distinction between those reactions which are designated as shifting and those which are not has been drawn. In some problems of classification this line will seem tenuous and at times outright unsatisfactory. At such times some other basis of demarcation might seem better adapted to the

66. It might be argued that reducing overall consumption would tend to reduce the prices of consumers' goods thus "shifting" part of the burden onto their suppliers. This contention, of course, possesses validity. But to include this sort of phenomenon in the shifting concept would blur the meaning to a point where it would lose its usefulness. Therefore, we cannot adhere to a universal distribution of loss concept, but must categorize this type of consequence as an effect. This does not mean, however, that such an eventuality, if significant, would be relegated quantitatively to a position of secondary importance.

problems under consideration. Nevertheless, two points must be emphasized. If the advantages of the incidence and effects breakdown are to be realized, the shifting concept must be limited. Otherwise incidence would be transferred as long as the entire process of adaptation continued, and would at many points become indistinguishable from effects. To eliminate such overlapping in borderline cases, a rule of classification, admittedly somewhat arbitrary is indispensable. Second, after the line has been drawn it must be rigorously observed lest the rule of classification be subject to the same vagueness and ambiguity which has limited the usefulness of earlier definitions. Limiting shifting to producer reactions makes the basis of the rule of classification analytically simple and understandable. That it is the most useful line of demarcation has been demonstrated above.⁶⁷

The second basis for the distinction of shifting from entire process of adaptation is that only the distribution of losses be considered as shifting. There are many cases in which an adjustment to the imposition of

67. As pointed out above this definition might be challenged by some theoretical objections. Were a complete general equilibrium approach either theoretically or practically applicable to incidence analysis the definition would include all pricing reactions. However, the tools of analysis which can be used in a study of this sort are limited. Hence, a useful definition must also be confined within these limitations.

tax confers benefit to participants in the economic process. For example, if a tax is shifted backward onto the agents of production employed in the industry producing the taxed product, this may very well reduce the rate of remuneration, not only of the agents employed in the taxed industry, but also throughout the entire markets for these agents. This would confer benefit upon other employers of the agents and/or the consumers of their products.⁶⁸ Although such cases are frequent and can occur quite close to the impact point, to include them under the shifting and incidence concepts would do gross violence to the way in which these terms are customarily used. Throughout its history incidence has referred to loss or burden, not benefit or gain, and shifting has connoted the transfer of loss, not the conferring of bonanzas. No purpose of clarification or simplification would be served by bringing into our terminology a category of positive or gainful incidence which the inclusion of such cases would require. Such phenomena are better treated as effects of taxation.

68. Marshall cites a case of this sort "if a tax be put on factories used in one industry, some of them will be diverted to other industries, and consequently the marginal costs and therefore values of the products in those industries will fall". Marshall, Alfred, Principles, 8th Ed., p. 438.

This very necessary rule, nevertheless, forces us to classify essentially similar phenomena at one time as shifting and at another as outside the shifting process. For example, the individual in determining the amount of productive effort he will supply, if he is in a controlling position, will equate the marginal disutility of additional effort with the marginal utility gained by an addition to his money income. When a tax is imposed the marginal utility of money income is altered, and the equilibrium therefore changed. Depending on the shapes of the functions and the nature of the tax, productive effort supplied will either increase or decrease. If the supply is reduced, the price of the agent will rise thus shifting part of the burden onto those who employ the agent. On the other hand, if the supply is increased, the price of the agent will fall thus conferring a benefit upon its users. Obviously the latter result is an effect and not shifting in a way in which most economists use the term. Here the reaction of those bearing the tax does not shift it, but rather intensifies its incidence upon them.

If a producer reorganizes his plant as a result of a tax and thereby reduces his demand for an agent thus reducing its price, he has shifted. But should his demand for an agent increase, the benefit to it occasioned by a

rise in its price would be an effect. Here again, the same genus of action at one time is shifting, at another an effect.

Special Problems of Classification

Before turning to the analysis of income taxes, certain problems of classification, not as yet discussed, which might cause doubt or confusion must be clarified. The next few paragraphs are devoted to a resolution of these issues.

The Problem of Unexpected Reactions Seligman cites the case in which a producer, spurred by a tax, improves his technique of production and recoups all or part of the tax loss. This he calls "Transformation",⁶⁹ which he distinguishes from shifting. Obviously no transfer of a loss is involved, and we must concur with Seligman and classify such consequences as effects.

This case, however, brings up an intriguing problem. The situation implies that the producer failed to maximize his position prior to the tax and is induced by the tax to act in a rational manner. For example, federal regulation of minimum wage levels is said to have had such

69. Op. cit., pp. 5 - 7 .

an effect upon the efficiency of southern manufacturers.⁷⁰ Von Mering decided that such non-economic behavior should not be called tax shifting in the proper sense of the word, since general principles to cover them cannot be developed.⁷¹ Obviously unknown and probably unknowable variables, non-economic in character, are of importance in determining the equilibrium of the economic unit under consideration. Nevertheless, if the adjustment to the new equilibrium results in the transfer of losses, it does fall within the category of shifting. The fact that other than economic considerations may enter in should not govern our definition even though the tools of precise economic analysis may be inadequate to cope with them. Monopolists who were not maximizing profit before the imposition of a tax, either because of fear or regulation, will often feel justified (or be permitted to do so by the utilities commission) in increasing prices to recoup the tax loss. Such information, though devoid of the elegance of rigorous theorizing, is very useful, and is employed in the same way as other tax shifting conclusions. Further, in most inductive studies it would be impossible to distinguish shifts, wholly economic in character, from those embodying non-economic

70. Cf. Shister, Joseph, The Economics of the Labor Market, p. 328.

71. Op. cit., p. 119.

variables.

Closely related to this problem, although not necessarily the same, is the case of oligopoly. Here estimates and predictions of the policies of rivals play a crucial role. Taxes add further variables to an already complex situation. To exclude the transfers of burden in such cases from the shifting concept merely because of the inadequacies of current techniques of analysis would not only be foolish, but would preclude the use of the concept in the very large and important areas of manufacturing, merchandising and mining.

The Problem of Capitalization Most recent writers exclude the capitalization (or amortization) of taxation from their concepts of shifting. Seligman contends "There is, therefore, a marked difference between shifting and capitalization. If a tax is shifted it cannot be capitalized; if a tax is capitalized, it cannot be shifted. Shifting and capitalization are in reality opposite, not complementary conceptions".⁷² Although he admits that capitalization might be considered a form of backward shifting, he holds "The difference between his (the one who capitalizes) case, however, and that of the dealer who shifts a tax on commodities back to the producer is

⁷². Op. cit., p. 5.

that, in the latter case, the tax is levied only once on a commodity destined to immediate consumption, while in the former case a whole series of payments is levied on a durable commodity. In the one case we have the shifting back of a single tax; in the other case we have the throwing back at once of a whole series of taxes".⁷³

Von Mering objects to "series of taxes" standard and points out that "It is sufficient that payment is still to be made and that the obligation to pay rests with the owner".⁷⁴ He then adds non-shiftability as an additional criterion for capitalization. This, however, does not tell us why capitalization is not shifting.

Although we agree that capitalization is an effect and should not be incorporated into the shifting concept, our reasoning is somewhat different. A producer who attempts to shift a commodity tax to the consumer is frequently restricted in his ability to do so by the decrease in effective demand as price rises. In effect, the refusal of some consumers to pay a higher price is in reality a refusal to have the tax shifted onto them. This consideration applies with equal force in the case of capitalization. The buyer of a piece of land who reduces his demand price by the amount of the capitalized

73. Op. cit., p. 225.

74. Op. cit., p. 98.

value of the tax is refusing to have the tax burden transferred to him when title to the property passes. Thus capitalization is a result of the unwillingness of buyers to permit a shift; it is not shifting. Consequently it is quite true that a tax will be capitalized only to the extent that it is not shifted.

Conclusion

In conclusion let us briefly review the definitions which will be employed in this study. In the first place the consequences of taxation are not considered as a single category, but the usual incidence-effect breakdown is employed. This will contribute to an effective adaptation of the tools of analysis to the uses, both educational, academic, and practical, toward which this type of inquiry is directed. Departing from traditional lines, our definition of incidence does not confine the extent of the incidence concept to the amount of revenue realized by the treasury, but includes all economic loss suffered by those upon whom the tax is levied or onto whom it is shifted. In order to make the distinction between incidence and effects meaningful, that part of the total process of adaptation of the economy to the imposition of a tax which is to be considered shifting was demarcated. This was done by limiting the shifting process to producer reactions, and to the distribution of

losses. Therefore, consequences flowing from the altered consumption expenditures of tax bearers and benefits enjoyed by some on account of the tax are considered effects, not part of shifting and incidence. Thus, the incidence concept emerges as the total economic losses of those upon whom a tax is levied or onto whom it has been transferred by adjustments within the process of production. The mechanics of these adjustments constitute the concept of shifting. Effects designate all other consequences of taxation including the results of altered consumption patterns of tax bearers and any benefits which a tax might confer.

Chapter III

THE CONCEPTS AND METHODS OF PERSONAL INCOME TAX INCIDENCE ANALYSIS

At the present time the theory of the incidence of a personal income tax is in a state of transition. Recent contributions to the literature of this field have made the older view, that such a tax could not be shifted, untenable. Nevertheless, their implications have not as yet been fully appreciated, and their content has not been integrated into a new comprehensive theory. As a result most current treatments of this subject are indecisive and equivocal. Statements to the effect that this tax offers great resistance to shifting, or that the tax is usually unshiftable, except under some special circumstance, are now common. It is, therefore, clear that a reformulation predicated on a fundamental understanding of the nature and consequences of the income tax would be desirable. A convenient starting point in the quest for this objective is to be found in a brief critical review of the traditional theory. In the process avenues to a new and more comprehensive theory will become apparent.

The Traditional Theory of Income Tax Incidence

The traditional theory held that an income tax, un-

less it reduced living standards below a minimum, could not be shifted. This conclusion was based upon two propositions. First, it was assumed that no forward shifting was possible because the tax levies upon consumers who, since they are not at the end of the chain of business transactions and have no one at a further stage onto whom the burden might be transferred, must bear the tax. Second, it assumed that personal income, above a minimum, is an economic surplus. Hence a diminution of income, occasioned by the tax would not alter the supply of productive agents offered by the taxpayer, and, therefore, no backward shifting possibilities could exist.¹

1. Seligman, who wrote before general income taxation had taken on great fiscal significance, and who did not consider most existing income tax statutes as taxing pure income, expounded the traditional position. "In those cases, indeed, where the tax is levied on pure income in the strict economic sense, the tax is substantially a tax on economic rent, plus a tax on profit, plus a tax on wages. Now, the tax on economic rent and on net profits cannot be shifted; and, therefore, as regards all members of the community except wage earners, a tax levied on pure income tends to stay where it is imposed. So far as the lowest incomes are exempted from the tax, the tendency would also be for the income tax on the laborers to stay where it is put. But, even in such cases, there is no absolute certainty that the income tax will not be shifted. In actual life, of course, as we very rarely find a pure income tax or an equal income tax, we cannot safely rely on the complete non-transferability of the tax. Nevertheless, to the extent that the tax may be considered one on surplus, rather than on margin, the chances are that the tax will remain where it is originally placed." Seligman, op. cit., pp. 386 - 387.

With the first assumption little objection can be raised. Although altered consumer expenditures produce effects which might be termed shifting, the definitions employed in this study and the majority of those used in

1. Although Seligman equivocates somewhat because of his doubt that there can be a real income tax, the position is clear. Personal income, excepting the subsistence minimum, is a surplus. This surplus is in the hands of the consumer. When it is taxed, the levy is upon consumers who are at the end of the chain of business transactions and have no one at a further stage onto whom the burden might be transferred. They, therefore, must bear the tax. This position has for many years enjoyed widespread acceptance. The following citations are typical. Kiekhofer, William H., Economic Principles, Problems and Policies, 3rd Edition, 1946, p. 792; Knight, Bruce W., Economic Principles in Practice, Rev. Ed., 1942, p. 526; Meyers, Albert L., Modern Economic Problems, 1939, p. 52; and Bye, R. T., and Hewett, W. W., The Economic Process, 1952, p. 891. Further as long as the tax rates are not confiscatory (100% or over on the increment), the taxpayer will continue to strive for his money income since income net of tax will be maximized by maximizing income before taxes. This latter proposition is inherent in the former. Were the taxpayer to alter his income plans (by varying the supplies of an agent under his control) on account of the tax, then his income could not be correctly considered to be a surplus, since a surplus is viewed as an excess over the payments necessary to bring forth the product or service. Thus, the contention that personal income is a surplus in the hands of the consumer necessitates the assumption that the taxpayer will attempt to realize the same gross income as before the tax. Few traditional writers explicitly state this is an assumption. Most mention it as an obvious truth, while still others are silent on the issue, thus making the assumption implicitly.

other works in the area do not consider reactions of this type as part of the shifting process.²

The second assumption, that income is a surplus and, therefore, that no alteration in the supply of productive agents can be expected to take place, is, on the other hand, not above criticism. Were this surplus concept defined in a sufficiently broad manner, and were the tax to impinge on the surplus so defined, then the traditional assumption would be satisfactory. Such a definition would necessarily conceive of the surplus as the difference between the total want gratification received by an individual and the total disutility incurred in acquiring this want gratification. This want gratification, as will be more fully developed later, includes in addition to the things money can buy such elements as leisure, security, social prestige, and power, just to mention a few. Obviously it is this total net want gratification which a rational individual will attempt to maximize, and a tax induced diminution thereof would not reduce his incentive to continue this maximization. But the surplus concept of the traditional theorist and the income concept of the tax statute, is not co-extensive with this total net want satisfaction. Rather it is

2. See Seligman, op. cit., pp. 387 - 388, on this point.

money income, or money income plus any payments in kind which might be received. Thus the usual concept of surplus depicts only part of the total want satisfaction. Moreover the disutility elements incurred in realizing money income are completely ignored. Certain aspects of want satisfaction not purchased directly with money, for example leisure, security, and pleasant working conditions, also received no consideration from either the traditional theorist or tax collector. It is clear, therefore, that only some of the many elements which an individual will weigh in determining the disposition of productive resources under his control are given recognition. As a consequence of this partial analysis the older theory can no longer make claim to general applicability.

The income tax reduces only the money income elements in the total net want satisfaction picture. As a consequence, the elements not procured directly with money income become cheaper in the relation to the things which money income makes available. Further, since total net want satisfaction, broadly conceived, would embrace considerations involving the distribution of want satisfaction between current and future time periods, these relationships, too, could well be altered by an income tax. Therefore, if the relationship between parts of net want satisfaction are changed by the tax, the possibility

of a change in the individual's pattern of maximization present itself. This could easily involve alterations in the amounts of productive resources which he supplies. Changes in the supplies of these resources which are agents of production could bring about alteration in their prices and the prices of things they produce. These price changes could well transfer all, or part, of the burden of the tax. In other words such a process would be shifting, made possible by the non-monetary net real income elements and the time distribution of income factors. Although these non-monetary elements and time factors are not in themselves shifting, they are avenues to shifting until recently neglected in the theory of income tax incidence.

Where does this leave the traditional surplus concept and its conclusion of non-shiftability? What was formerly a general theory now becomes only a special case in the new theory. If on account of rigidities in the individual's preference pattern, the post tax equilibrium would result in the same gross money income, then his supply of productive resources would remain unchanged. This case may frequently be encountered in real life, especially in the short run and in instances of pure economic rent. However, it is sufficient for our purpose to point out that this is but one possibility among many. On the other hand, it is mandatory that the proponents

of the traditional school, if they desire to claim general validity for their conclusion, prove that this is the only possible situation. Such a proof has never been attempted, and, if it were, would undoubtedly meet with failure. For this condition to be general the supplies of all agents both in the short run and the long run would have to be perfectly inelastic. Therefore, the traditional doctrine can be seen to rest on an absurd assumption.

This entire discussion can be resolved into one simple point. Even the traditional writers freely admitted that an income tax which discriminated by taxing income in some occupations more heavily than in others could be shifted. What they failed to see was the general income tax, with identical rates for all sources of income, also discriminates because the importance of money income in the want satisfaction pictures of different individuals varies. Thus the tax discriminates against those who assign greater importance to money income and the things it will buy, and in favor of those who emphasize non-monetary factors more heavily. For example, let us assume that two individuals have the same net want satisfaction. One earns one hundred dollars per week and works forty hours. The other earns seventy-five dollars, but works only thirty hours. The additional ten hours of leisure compensate him for the twenty-five dol-

lar per week less money income. The income tax will levy more heavily upon the man earning one hundred dollars, despite the fact that the net want satisfaction of the two prior to the tax is identical. It might, therefore encourage an alteration of the number of hours worked and thereby induce shifting. In addition, and even more important, the tax most certainly discriminates against the money income portion of total want satisfaction. Thus even though it did not discriminate as between individuals, it would alter their resource supply decisions and induce shifting. Hence, the income tax discriminates in two directions; between individuals with differing want satisfaction patterns, and between the components of net want satisfaction itself.

The Basis of a New Theory of Income Tax Incidence

Because it discriminates against money income and in favor of income elements not procured with money, and because it may alter timing relationships, any income tax which uses as its measure the flow of money or money and commodities and services received in kind, may be shifted. It is through a study of the altered relationships which this discrimination produces, that the new theory will be developed. The basis of this theory will necessarily be those elements in the total net want satis-

faction picture which stand as alternatives to current money income. To non-monetary elements already mentioned one further category should be added because of the nature of most income tax laws. This category includes sources of real income (commodities and services) which are tax free. Although this category might be considered merely a special class of non-monetary elements it is treated separately for two reasons. First, the qualitative characteristics of the tax free real income sources are drastically different from what we previously have called non-monetary elements of want satisfaction. Second, while the tax free real income sources might practically be subject to income taxation, our non-monetary elements would present formidable obstacles to the tax collector. Although a tightly constructed tax statute could eliminate the great majority of these elements, legislators have not chosen to do so.³ Thus there are three basis of shifting; (1) the non-monetary elements of total want satisfaction, (2) the timing factors, and (3) the untaxed sources of real income.

The Non-Monetary Elements

The non-monetary elements of total want satisfaction are alternatives to money income which may be sub-

3. The traditional theory would admit discrimination and, therefore, the possibility of shifting here.

stituted for money income should realizable money income vary. If net money income declines because of tax, the individual might choose to substitute more of these non-monetary elements in place of part of money income, or visa versa. The non-monetary factors are as follows:

Leisure If a man works, time is consumed - time which otherwise could be devoted to whatever enjoyment he might select. He works in order to obtain the money income and the things it will buy, but in the process foregoes the want satisfaction which leisure could provide. In maximizing his total net want satisfaction he strives to achieve a optimum balance between leisure and the income derived from labor. Theoretically he would so distribute his time that the marginal utilities of the last increment of leisure and the money income derived from the last increment of working time would be equal. An income tax, obviously will influence this relationship.⁴

Favorable Conditions of Employment Usually within the same non-competing group of those occupations which offer more favorable conditions of employment pay less than those which are not so favorable. The higher wages in

4. Many recent writers including Von Mering, Boulding, Groves and Black have recognized the importance of the alternative relationship between leisure and money income.

the latter case are viewed as a compensation for the less propitious conditions of labor.⁵ Thus the individual may forego favorable working conditions for money income, or he may elect favorable working conditions in place of money. The two are alternatives and the individual chooses between them. Among these favorable conditions the following are examples; a clean and physically attractive work place, physical safety on the job, good possibilities of advancement, proximity to business, shopping, or recreational centers, congenial fellow-workers, security and stability of employment.

Financial Flexibility Lord Keynes has pointed out the investor's desire to hold assets in liquid form, and, therefore, interest is paid, in part at least, to induce them to forego liquidity. The advantages of liquidity are those of freedom of financial movement on quick notice without a loss on the disposition of currently held assets, and avoidance of declines in the value of assets held due to increases in the interest rate. At the present time higher rates of return are paid on less liquid investments to compensate the loss of liquidity. Thus liquidity and income from investment are substitutes, and

5. Some writers refer to these differentials as apparent rather than real.

the individual seeks the best possible balance between the two. Again the tax may upset the balance by reducing the net compensation received for foregoing liquidity.

Financial Security Closely akin to and at times indistinguishable from the desire for liquidity is the desire for safety of invested funds.⁶ Higher monetary compensation is received for foregoing safety when funds are invested. This is necessary to induce investors to give up the peace of mind and sense of well being that a secure portfolio provides. Therefore, safety and money income from invested funds are alternatives and the investor will balance these elements in formulating his portfolio policy. The income tax which levies upon the return from risk bearing and not upon safety can quite easily upset this balance.

6. Some objection might be raised to the distinction between liquidity factors and risk elements. Admittedly they are closely interrelated since risk in part accounts for the desire for liquidity. The danger of ultimate loss of principle and non-receipt of income is not the same as the possibility of suffering a loss due to forced sale under unfavorable circumstances or temporary value declines occasioned by increased interest rates. A security may be entirely safe and yet not liquid in the technical sense. For example 3% government bonds might fall to 95 because market rates have advanced to 4%. The bond is then not liquid since it cannot be sold at acquisition cost. Nevertheless, it is entirely safe in that there is no danger whatsoever that the government will fail to meet interest payments or repay principal at maturity.

The Timing Factors

A reasonably mature individual's conception of total net want satisfaction would not be limited to the immediate present. Neither would it be confined to the calendar or fiscal year of the tax collector. As a consequence the individual balances current against future want satisfaction. Two aspects of this problem are important.

Consumption Versus Future Money Income One of the reasons for foregoing current consumption is to realize interest from the investment of savings. In balancing the distribution of current income (after tax, should an income tax be in effect) the want satisfaction to be derived from expenditures on consumers goods is weighed against the advantages of future income. The income tax will not bear upon the consumption expenditures but will reduce the net return anticipated from invested savings. Hence the tax may alter the manner in which current net income will be distributed between consumption and saving.

The Utilization of Exhaustible Resources Some individuals own exhaustible natural resources. Frequently they can control the rate at which these resources are depleted. This rate of depletion determines the distribution of their incomes over time. On the basis of their

valuations of present, near future, and more remote future income this distribution and, therefore, the rate of depletion will be determined. Income taxation, both current and levies expected in the future, are necessarily taken into consideration in formulating the resource utilization plan. That the presence of taxation might induce a plan different from that which would be formulated in the absence of the tax is apparent.

Untaxed Income Sources

As pointed out above income tax statutes usually levy only upon money income or money income plus payments in kind. Obviously other sources of real income are available. A man can raise a garden, repair his house, and wash his car, and in so doing receive real income not subject to tax. His wife can work as a housewife or make clothing for the family and pay no tax on these important real income services.⁷ In addition some pensions are tax exempt. Thus untaxed sources of real income are available as alternatives to earned money income which is subject to tax.

Thus it is evident that the standard of living, total net want satisfaction, is composed of many elements.

7. Kuznets has estimated that the services performed in the home by housewives in 1929 was worth twenty-three billion dollars. National Income and Its Composition, 1919-1939, II, p. 433.

Money income plays but a partial role in the total picture. The other elements which are not subject to income taxation stand as alternatives to money income. Since the income tax upsets the pre-tax balance between these other elements and money income, the possibility and probability of shifting is clear.

Types of Reactions to Income Taxation

In the description of the basis of the new theory it was pointed out that the tax would alter the prevailing optimum balances between money income, on the one hand, and the other elements of total net want satisfaction, on the other. The difference between the pre-tax and the post tax positions of equilibrium, it was indicated, could entail alterations in the quantities of productive resources supplied, thus creating the possibility of shifting. Three possible reactions can be distinguished.

The Rent Case As has been pointed out above, rigidities in the individual's want satisfaction pattern may result in no change in the supply of productive agents offered in response to a tax occasioned in reduction money income. This would occur if the individual's resource allocation plan were fixed over the range of income influenced by the tax. This fixity could be psychological in origin,

or could occur because the individual cannot control the amount of resources which he will offer. For example, he might have decided to work so many hours, no more no less, or employment might be offered in fixed amounts. Situations of these kinds are more likely to be short run phenomena than long run. Over a period of time the psychological rigidity might break down, or a job requiring a different quantity of work might be chosen. Over the long period this case would probably be encountered only in instances of natural fixity of supply.

The Income Effect An income tax reduces the amount of money income which an individual retains, thus reducing the quantity of goods which he can buy. The law of diminishing marginal utility tells us that if the supply of goods declines the marginal utility of these goods rises. For this reason Professor Knight concluded that the individual would offer more productive resources in order to get more goods.⁸ This is a very possible reaction. If the tax so reduces money income as to jeopardize the standard of living, an individual will be motivated to forego other elements of total net want satisfaction in order to restore money income. This

8. Knight, Frank H., Risk, Uncertainty and Profit, pp. 117 - 118.

reaction shall be called, using the terminology of J. R. Hicks, the "income effect".⁹

The Substitution Effect A reduction of money income not only entails less command over goods in the exchange process, it reduces the cost of enjoying the other elements of net want satisfaction. Since, in effect, the prices of these other elements have fallen, there will be a tendency to substitute them in place of the commodities and services which money income can command. Again, following Hicks, this shall be called the "substitution effect". These two effects are operating in different directions, the income effect to increase the supply of resources, the substitution effect to increase the enjoyment of other elements thus decreasing the supply of resources. The influence of an income tax on the individual's supply of productive resources will, therefore, depend upon which of these effects predominates.¹⁰

9. Hicks, J. R., Value and Capital, See Ch. II. Note that the term "income effect", as employed in this study, refers to money income and not total want satisfaction.

10. Lest there be any confusion as to the types of reactions described by the terms income effect and substitution effect. Let us recapitulate exactly what is meant. The income effect describes the reaction of an individual who increases the amount of resources offered when net return for supplying them declines. For example in response to lower net wages a worker may attempt

An answer to this critical question can be framed in terms of relative marginal utilities. If in the post tax situation the marginal utility of an increment of money income after tax, expended as the individual sees fit, exceeds the marginal utility of the corresponding increment of other want satisfying elements, then he will increase his supply of resources. If, on the other hand, the marginal utility of the increment of the other elements should be greater, then money income will be foregone and they will be enjoyed. But under what circumstances might each of these conditions be expected to obtain.

Employing the diminishing utility principle, broadly, i.e. as income rises the marginal utility of goods acquired will fall, tentative conclusions can be reached. Among lower income groups, whose expenditures are largely directed to necessities or near necessities, the marginal utility of increments of money income will be high, while that of other elements will be relatively low. As we

10. to work longer hours in order to restore his money income. By the same token, an individual whose reactions are dominated by income effect considerations will supply less resources at higher rates of remuneration. Thus income effect dominance indicates negatively inclined factor supply schedules for the individuals in question.

The substitution effect describes exactly the opposite reaction pattern. More resources will be supplied at higher net rates of return, less at lower. It therefore indicates positively inclined individual supply schedules.

move on to higher income levels, the marginal utility of money income would be expected to fall at the same time that the means of enjoying one's leisure and other want satisfying elements become more plentiful. Hence the suggestion can be proffered that at low income levels the income effect will dominate, and that as higher income levels are considered the substitution effect will become increasingly important, finally becoming the controlling factor.¹¹ Little inductive evidence is available on this subject but that little supports our conclusion. Senator Douglas found the supply curve of industrial workers to be negatively inclined, which means more labor supplied at lower wages.¹² This is, of course, the income effect.

Shifting Possibilities Conclusion regarding shifting are now possible. Should the entire market for an agent of production be comprised of individuals behaving in the manner depicted in the rent case, or should the income and substitution effects perfectly offset each other no change in the supply of the agent would occur and no shifting would be possible. Should income effects dominate substitution effects, the supply of the agent would increase and,

11. This generalization does not preclude substitution effects at low income levels and income effects at higher levels. It merely indicates the most probable pattern.

12. Douglas, Paul, The Theory of Wages, Ch. XII.

under free market conditions, its price would fall. Not only there would be no shifting but the incidence upon the group would be reinforced. Should substitution effects dominate income effects in the market for the agent, then the supply would fall and price would rise. Thus substitution effect dominance is the shifting case. It must be emphasized that the presence in the market of individuals who do not vary the amount of productive agents they supply does not preclude shifting. As long as substitution effects dominate income effects there will be a net diminution in the supply of the agent.

Offsets to Shifting Throughout the subsequent discussion the term, offsets to shifting, will be employed. Since shifting is occasioned by a decrease in supply, offsets to shifting necessarily refer to alternate sources of supply which can counteract the tax occasioned reduction. Thus an income effect which increases supply can "offset" the tendency to shifting which can be expected should a substitution effect be present.

The Method of Analysis

The Indifference Curve Technique The analysis of the incidence of the income tax presented to this study will employ the indifference curve technique as the primary device of exposition. As is customarily the case curves

will be drawn which depict equivalent combinations of two variables. In Figure 3 (page 85) leisure, which in the subsequence discussion shall be used as the example of the elements of total net want satisfaction other than money income, is measured along the Y axis. Money income, which basically should be interpreted as representing the things which can be procured with money, is measured along X. Each indifference curve represent a series of combinations of leisure and money income which yield the same gratification to the individual. The curves are necessarily convex to the origin. Were they drawn in any other manner no combination of leisure and income would be preferable to all leisure or all income. Such a condition would not only be unrealistic; it would in the leisure-income case be impossible.

Each negatively inclined straight line shows all of the possible combinations of leisure and income at a given rate of pay. At higher rates of pay the income possibility lines will be less steeply inclined since more income will be realized for the same amount of work. There will be an indifference curve which will be tangent to each of these lines.¹³ This will be the highest indifference curve at-

¹³. This assumes a regular indifference curve pattern. Although S-shaped convolutions of the indifference map are possible, their occurrence is likely to be so rare and occasioned by such odd behavior pattern that such cases are not considered.

tainable at that wage rate, hence the tangency point depicts the individual's distribution of choice between leisure and income. If we connect the tangency points corresponding to various net rates of remuneration, we develop the Leisure-Income Relation line which shows the distribution between income and leisure at a series of wage levels. While the income effect dominates the curve rises showing more leisure is preferred at higher pay levels; when the substitution effect is stronger the curve falls depicting less leisure at higher rates.¹⁴

Possible Indifference Patterns The Leisure-Income Line drawn in Figure 3 shows an initial income effect followed by a substitution effect. Although such a pattern is probably typical of an individual of mature tastes, it may not apply to those with a less well developed appreciation of the means of enjoying life. In the latter case an income effect could prevail throughout, or the curve could flatten at higher wage levels. But in all cases an income effect will dominate at low income levels. There is some level below which income cannot fall if the

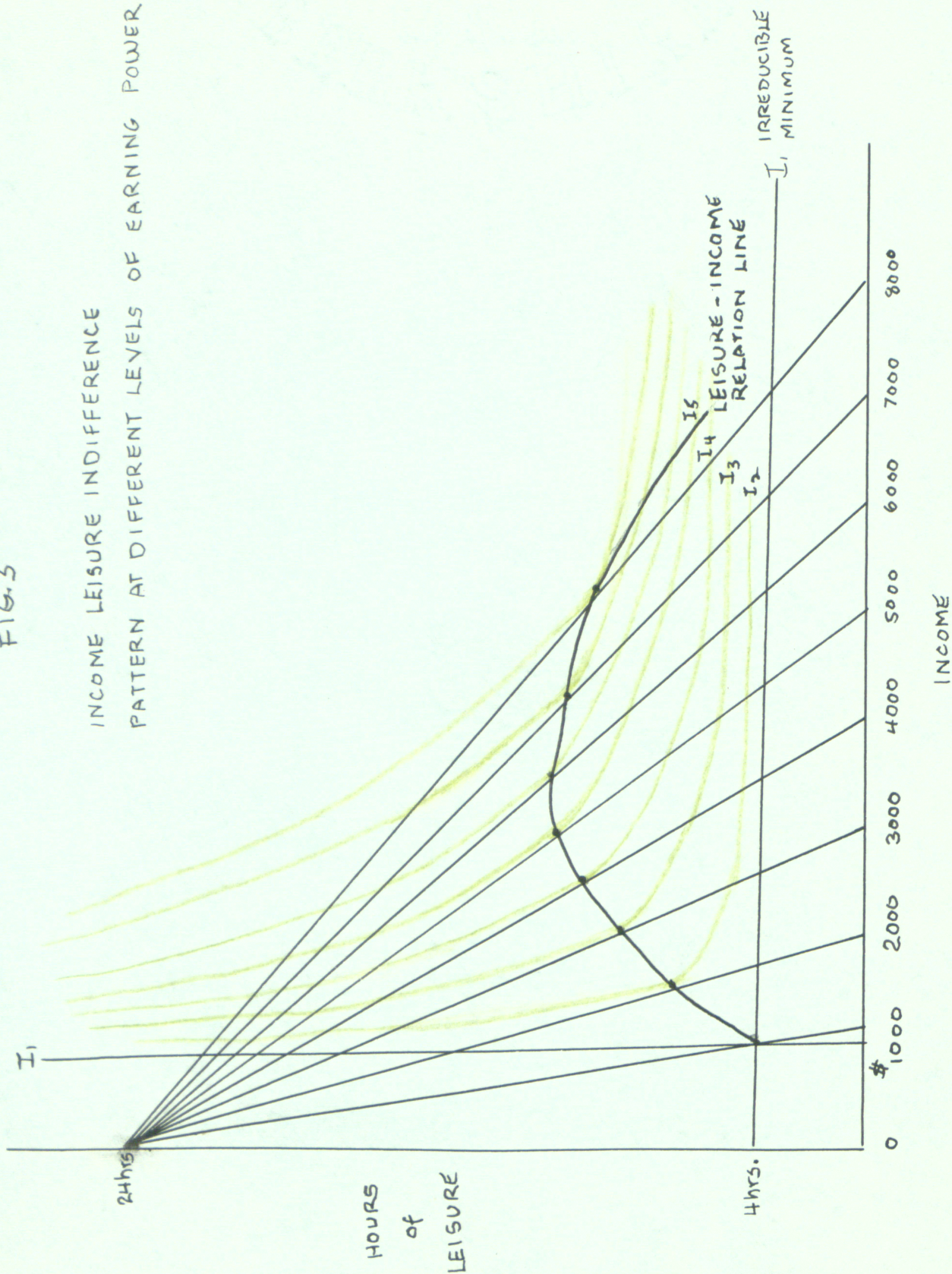
14. This curve is in effect the price consumption curve of leisure. It is by no means to be considered an income consumption curve since income and leisure are directly related, i.e., the price of leisure is the amount of income foregone.

individual is to survive, and some amount of leisure which is indispensable. In Figure 3 this is assumed to be \$1000 of income and four hours of leisure, and is called the irreducible minimum. At these minima, depicted by Il, leisure and income are no longer substitutes, but complementary. At levels of income and leisure close to the irreducible minimum this complementarity will continue to dominate the pattern; thus the curves will be shaped like the letter V with a slightly rounded point. As can easily be seen from Figure 3, such an indifference pattern will yield a rising income leisure line.

A higher income and leisure levels the element of substitutibility plays a more important role, and the income-leisure line may fall. This would indicate a wider appreciation of the things money can buy, and can be expected to be found among those of higher income and education. Although the validity of this conclusion may not be apparent at first glance, it rests upon sound analysis. As income rises the price of leisure in relation to other goods also rises. Once the pressure on living standards is off, a substitution of the relatively cheaper goods which money can buy for the relatively more expensive leisure would logically follow, assuming the individual knows how to make this substitution. Those of higher income and education are usually more familiar

FIG. 3

INCOME LEISURE INDIFFERENCE
PATTERN AT DIFFERENT LEVELS OF EARNING POWER



with the varied opportunities for expending money income, and, therefore, can be expected to make the substitution. Needless to say this cannot continue indefinitely because there is some minimum of leisure, not necessarily the physical irreducible minimum, below which they will not go. At this leisure level the curve would become flat and thereafter might even rise. The individual of restricted tastes, usually found in the lower income brackets, may not know how to effectively substitute the things money can buy for leisure. Therefore his income leisure curve may continuously rise or rise to a certain level and then become horizontal.

This income-leisure curve, naturally, will not be the same for all individuals. Those who have become accustomed to higher living standards will consider a wider range of goods to be necessities. Thus their curves will not reach a peak at incomes as low as those who have not so developed their consumption habits. Any individual's curve can change with the passage of time, depending how his concept of necessity matures. Some curves might have more than one rising or falling phase, which would indicate that the individual would be able to simultaneously contemplate more than one range of living standards.¹⁵

15. Somers implicitly assumes this when he draws a double reversing supply curve for individual labor, op. cit., p.177, Figure 4. He does not employ the indifference curve technique.

This, however, seems more likely to be the exception rather than the rule, since most people tend to reason in terms of their existing experience and living standards, their ideas of projected behavior at other levels being more fanciful than concrete. Should a new level be realized, then it is much more likely that a new pattern would be established rather than adherence to some preconceived formulation. Only in instances where rapid transitions of living standards had recently transpired could this dual contemplation be anticipated. Therefore, we will consider the curve with the single rising and a single declining phase to be typical.

Certain specialists have pointed out that a bias in favor of a fixed quantity of leisure exists. If the usual working day is eight hours many, so this line of reasoning goes, workers will want to work eight hours, no more no less, and enjoy sixteen hours leisure.¹⁶ This would be depicted graphically by angular indifference curves and a flattening of the income leisure line. Although this bias undoubtedly does exist for some individuals, it is probably not as widespread as some might believe. Most people, who do so, work eight hours per day because employment is offered in eight hour packages. Absenteeism,

16. Schwartz, Eli, and Moore, Donald A., "The Distorting Effects of Direct Taxation - A Revolution", American Economic Review, March, 1951, pp. 142 - 143.

tardiness, and desire for overtime, testify to frequent resistance to the size of the package by the more bold dissidents. Further more real substantive leisure does not begin when the formal working period ends, but rather when the worker arrives home or wherever he goes after work. Thus the leisure preference may be expressed through seeking proximate rather than remote employment. Hence the typical individual shall be considered as one who will attempt to vary his hours of leisure in response to income changes.

Although not specifically included in the subsequent discussion, intensity of effort while on the job could similarly be analyzed, and comparable conclusion should be attainable. This would be particularly true of workers paid on a piece rate or bonus basis, or those who might secure promotion or salary advancements as a consequence of increased productivity. This reasoning would only lose force in those instances in which greater-on-the-job-output involves no undue extra strain or displeasure for the worker.

Time Periods and the Indifference Pattern The individual may well have a different indifference pattern in the long run than in the short run. In the short run existing conditions, imposed by past developments, would be an important determinant, whereas in the long run the individual's

basic preferences would dominate. For example, the individual in the short run may be in debt or have a son in school. He would, therefore, have to bear these obligations in mind in making his immediate or near future decisions. Over the longer period these temporary problems will be passed and more basic preference will come to the fore.

The Diagramatic Depiction of Income Taxation It has already been demonstrated that a negatively inclined straight line designates the income possibilities available to an individual at given rates of pay. Income taxation reduces the net income possibilities. Therefore, the net income possibility line, once an income tax is imposed, will lie to the left of the pre-tax line. The position and contour of the post tax line will depend upon the amount and type of tax.

Proportional Income Taxation A proportional income tax reduces net income by a constant percentage amount. If the tax be 25%, the individual receives only seventy-five cents out of each dollar that he earns. Therefore, his income possibility curve after tax will be a straight line occupying the position of a line which would represent 75% of his pre-tax rate of pay. In Figure 4, K L depicts the individual's gross earning power. K A shows his net income possibilities with a 25% proportional income tax. K B and K C

indicate the same with tax rates of 50% and 75% respectively. It is clear that it is the income possibility curve net of tax that is of importance to the individual.¹⁷ The distribution of money income and leisure, our example of elements other than money income, which he will choose will be determined by the tangency of the net income line with an indifference curve.

Progressive Income Taxation A progressive income tax increases in rate as income rises. Therefore, the realizable net income per increment of money income declines as income increases. Typically, progressive tax statutes provide for bracketing and allow some amount of income to be exempt from taxation. Figure 5 depicts such a tax. ¹⁸ O A income is assumed to be exempt from taxation. Therefore, over the range of income from O to A the after tax line coincides with K L the gross earning line. Income increments from A to B are subject to tax at a given rate. Hence the after tax line departs from K L and slopes downward more steeply than K L. In the B to C bracket the increment rate is higher, and the realizable income line slopes even more steeply. In the bracket of income over C, which is the highest bracket this individual could enter, the increment

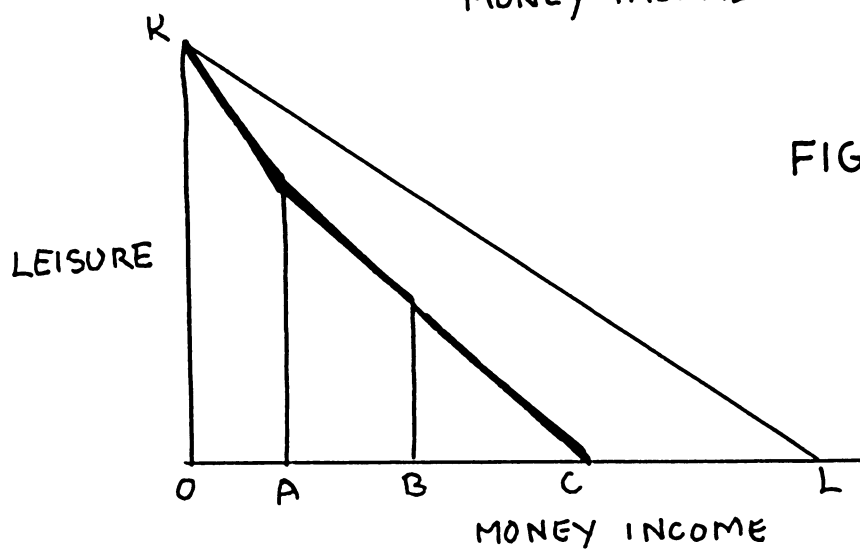
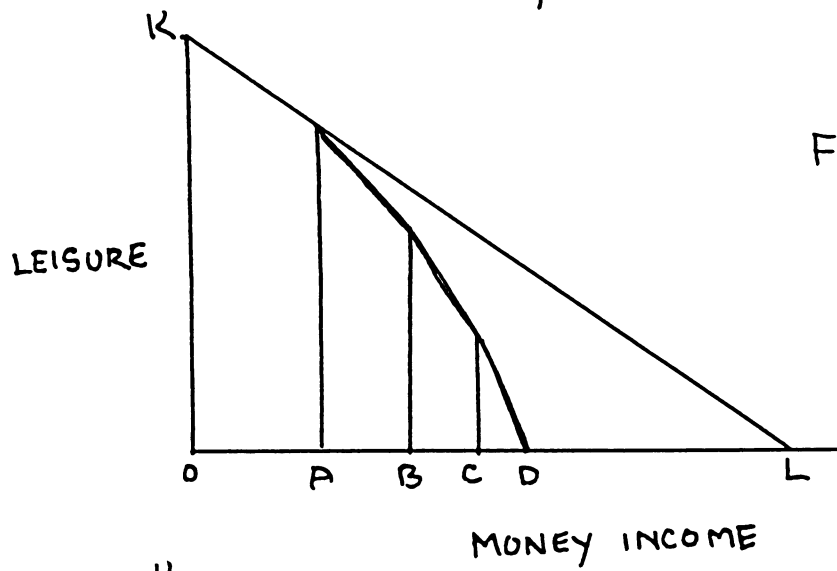
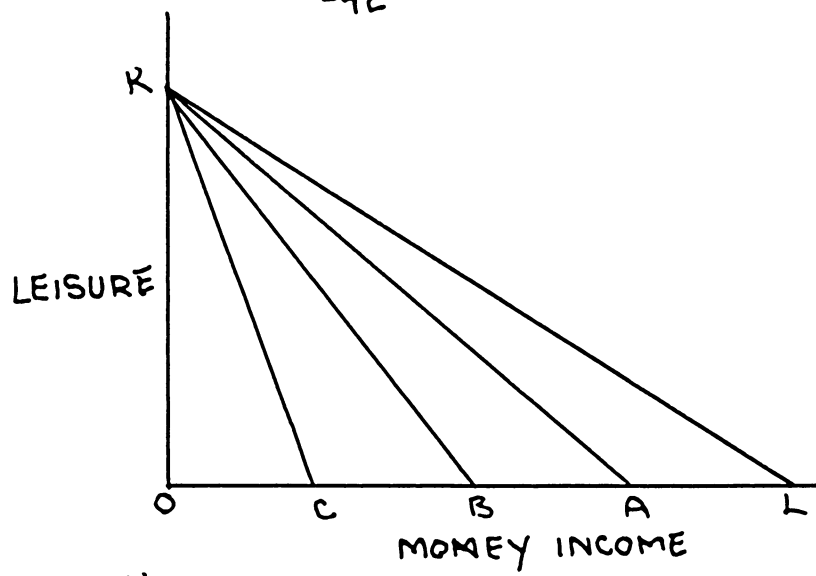
17. An exception to this conclusion is found where income before tax is used as a measure of social prestige or power.

rate is still higher and, therefore, the slope of realizable income curve is greater than in the B to C bracket. Were the tax of a continuously progressive type, rather than a bracketed tax, the after tax income curve would be smooth in contour and concave to the origin. Because of administrative difficulties such a tax is of theoretical interest only.

Regressive Income Taxation A regressive income tax levies upon successives, or bracketed, increments at successively lower rates. Therefore, the after tax income curve would become less steeply inclined as income rises. In Figure 6 such a tax is illustrated. The O A bracket is most heavily taxed. From A to B a lower rate prevails, and from B to C a still lower rate is in force.

The Measurement of Income Tax Incidence

Before proceeding to analyze the shifting and incidence of the income tax, it is advisable to specify how our concept of incidence applies to the taxpayer. It will be recalled that the definition employed in this study embraces total losses and is not limited by governmental receipts. Although not specifically pointed to this definition, attempts have been made to determine the "excess burden" of certain taxes. Following Marshall's suggestion that commodity taxation reduces consumer's surplus by more



than gross tax yield,¹⁸ M. F. W. Joseph formulated a graphic presentation to measure this extra loss.¹⁹ Her technique was to show that a greater yield to government could have been realized with no more loss to the taxpayer if an income tax had been levied instead of the commodity tax. This extra amount is the excess burden. Haskell P. Weld employs the same approach to demonstrate an excess burden of income taxation as contrasted with poll taxes.²⁰ His reasoning is as follows:

In Figure 7, (his diagram) O K represents the maximum number of hours of leisure an individual might enjoy, and O L the largest income he could earn. He will select to earn K F income because K L is tangent to an indifference curve at P. Should a proportional income tax be levied, the income after tax possibilities are now measured along K Q. He will now earn K E dollars and keep K A dollars, because K Q is tangent to an indifference curve at Q. The government will A E Q R dollars. If the same amount of money were taken from him by means of a poll (fixed amount) tax, income after tax possibilities would be measured along M Q. M Q is tangent to an indifference curve at S. This

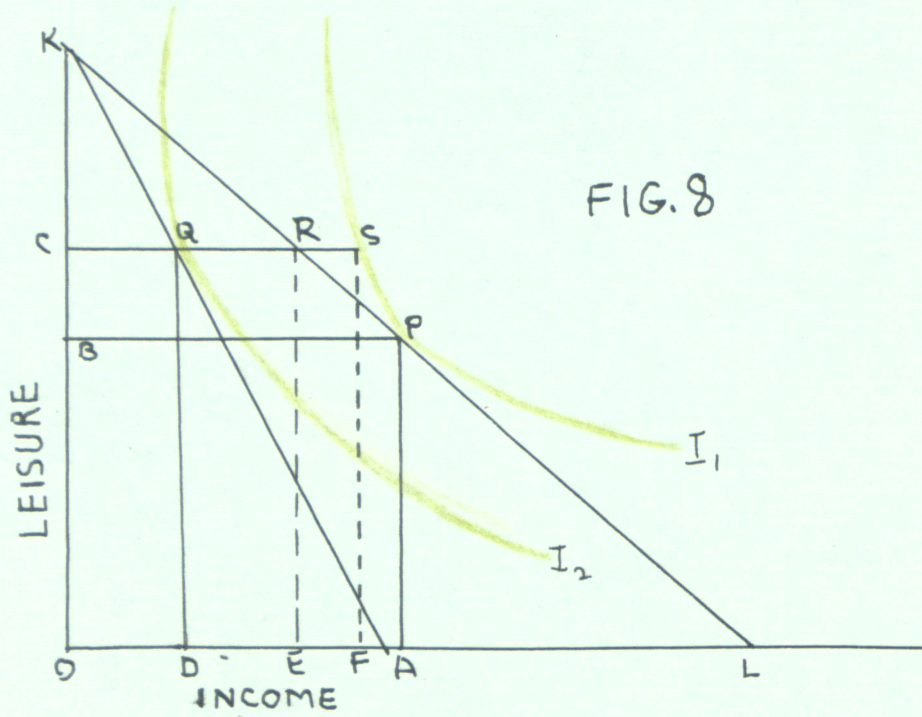
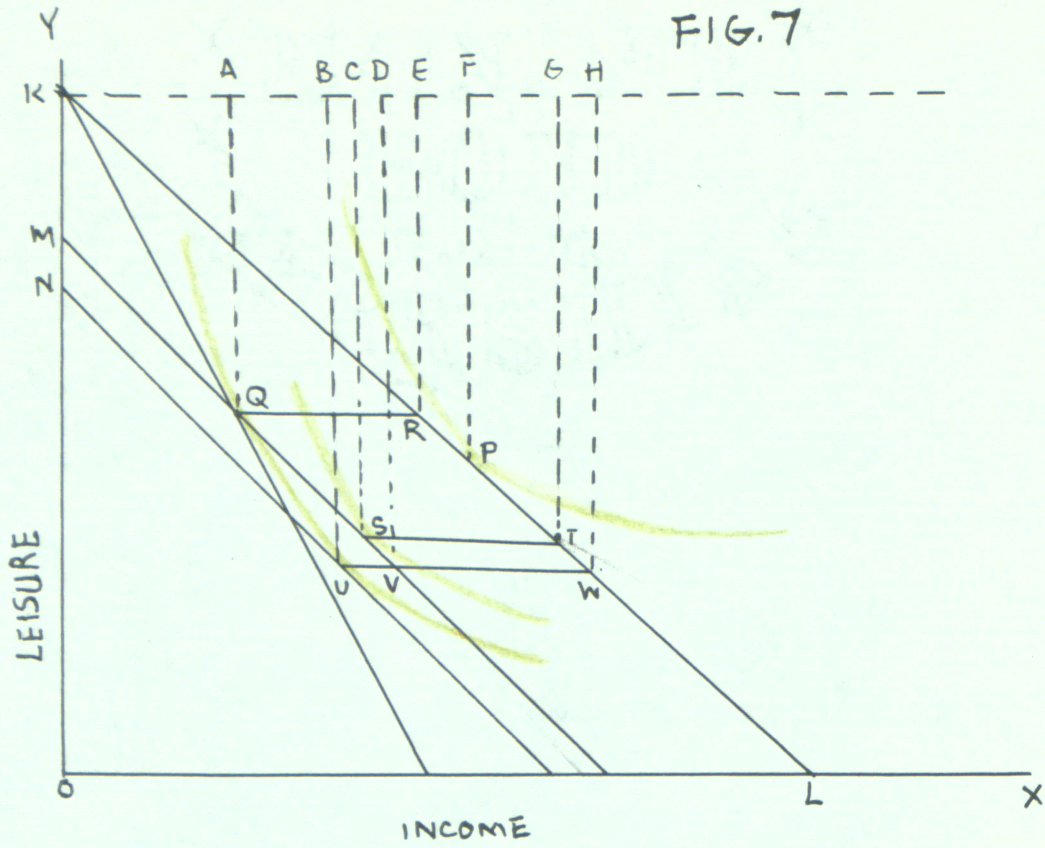
18. Marshall, op. cit., p. 467.

19. Joseph, M. F. W., "The Excess Burden of Indirect Taxation", The Review of Economic Studies, June, 1939.

20. Wald, Art., cit., pp. 582 - 587.

is a higher indifference curve than the one K Q touches at Q. Thus the poll tax would be less burdensome. If the taxpayer were to suffer the same real loss as with the income tax, V W could be raised by a poll tax because the line N U is drawn parallel to K L and is tangent to the same indifference curve as K Q. Since V W is equal to Q R, the tax take of the income tax, U V is the excess burden. Wald's V W, which equals tax take plus excess burden, does give us a money measure of the incidence of the tax. The real incidence, of course, is the difference in want satisfaction of the post tax indifference curve as contrasted with the pre-tax curve. The problem is to translate this real difference into money terms. Wald does this by drawing N U parallel to K L tangent to the post tax curve. In other words he measures the money difference between the curves under conditions of the pre-tax income-leisure price relationship. This is in the finest Hicksian tradition, in that Hicks employs this technique to demonstrate that commodity price changes are tantamount to income variations.²¹ However, this procedure which is based upon the pre-tax relationships and applies them to the post tax situation, is but one of several possible means of measurement. The money difference between the

21. Hicks, op. cit., p. 31.



curves at any leisure level might be measured, or the money difference between pairs of like sloped tangents of any slope might be determined. The issue of which device to employ becomes one of utility and reasonableness.

In Figure 8, after the imposition of the proportional income tax the individual is in equilibrium at Q. He now elects O C hours of leisure and O E income of which he retains O D. This is in contrast with the pre-tax equilibrium at P with O B leisure and O A income. Obviously a new leisure income price relationship exists. Where Wald draws (Figure 7) a parallel to K L tangent to I_2 , we could just as easily draw a parallel to K Q tangent to I_1 , and take our income reading. Thus, rather than extrapolating the pre-tax relationship into the post tax situation, we would be impounding the post tax relationship upon the pre-tax situation. Little basis of preference between these two techniques exists, except that the post tax relationship is more current. However, the choice is not restricted to these two alternatives.

After the tax O C of leisure is being enjoyed and only C Q net income is being received. This is the reality of the situation. The incidence of the tax would best be viewed as such a figure that when added to C Q the total will lie on I_1 . In other words the question is asked, how much more net income in the post tax situation would be required to regenerate the pre-tax want satisfaction.

If we extend C Q to I₁, we find this amount to be Q S, which exceeds the tax receipts, Q R by R S.²² This measurement is decidedly superior to Wald's income parallel technique. The latter is satisfactory in examining income commodity relationship since both variables may presumably assume any value, and are not totally casually related. But leisure and income are completely inter-related, and only certain leisure values are possible. Further only incidence so designated, when added to post tax income will invariably yield the want satisfaction depicted by I₁. To have an incidence value, that when added to post tax income would fall on some other indifference, would seemingly defeat the purpose of exact measurement.

Alternative Techniques of Presentation

In this analysis of the influence of income taxation upon the individual's distribution of choice between income and other elements of total net want satisfaction, of which leisure is our example, the indifference curve technique shall be employed. As pointed out above the graphic presentation will follow the form of Figure 3, where leisure is measured vertically and income horizontally. Needless to say, other devices of demonstration exist and have been profitably employed.

22. Hicks employs precisely this technique when measuring consumer surplus, op. cit., p. 31.

Figure 9 illustrates the presentation of Von Mering.²³ O U is the curve of total utility derived from money income; O D measure the total disutility of earning this money income. The equilibrium of the individual is realized where the slope of O U equals the slope of O D. The influence of the tax is shown by a movement of O U. Figure 10 illustrates a similar presentation, except that the functions depict marginal utility and disutility rather than total utility and disutility. The latter has the advantage of wider popular understanding and easier visual interpretation, since equilibrium is designated by the intersection of lines rather than equality of slope. Neither of these techniques was selected for the following reasons. The utilitarian approach has been subjected to serious criticism in recent years. Without going into the merits of this controversy it is sufficient to indicate divided opinion does exist, and, therefore, a less disputed approach is to be preferred unless real value of exposition is lost.²⁴ Secondly, the conclusions in regard to work-leisure determination must be inferred from the amount of money income. Direct presentation is preferable. Third, the way in which taxation alters the utility of income function must be independently determined, and then super-

23. Von Mering, op. cit., pp. 102 - 111.

24. In a later section we do employ the utility approach when it is felt that it does contribute significantly to understanding the issues involved.

imposed upon the graphs. Again direct exposition would be superior. Figure 11 illustrates the presentation of Somers.²⁵ He merely draws a curve describing the amount of labor an individual will supply at different wage rates. The negatively inclined section of the curve indicates the dominance of the income effect while the positively sloped part depicts superiority of the substitution effect. Although this approach is free of most of the objections detailed against the utility technique it suffers from two shortcomings. In the first place the work-wage choices are assumed and not derived. Second, it is not well adapted to considering other than proportional income taxes.

This rejection of alternative techniques leaves us with the indifference presentation which circumvents the aforementioned difficulties. Here, however, a number of possibilities present themselves. Figure 12 indicates the type of indifference map employed by Boulding for purposes of tax analysis.²⁶ No real objection can be raised against his graphics, and they possess the merit of directly presenting the work variable. Mild objection might be raised to the less conventional form the indifference

25. Somers, op. cit., pp. 172 - 178.

26. Boulding, Kenneth, E., Economic Analysis, Rev. Ed. pp. 773 - 775.

FIG. 9

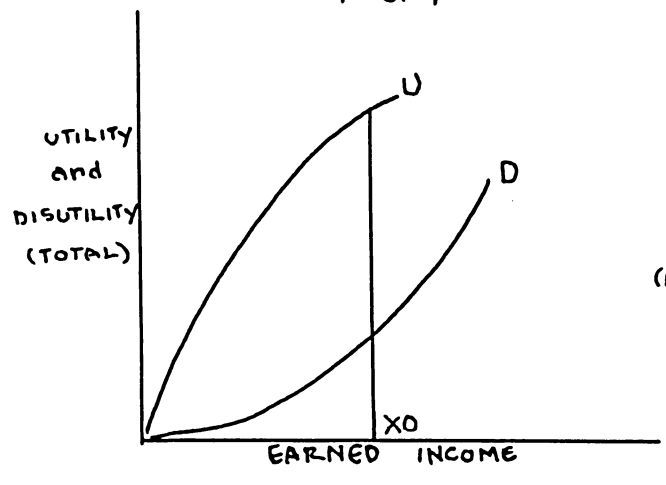


FIG. 10

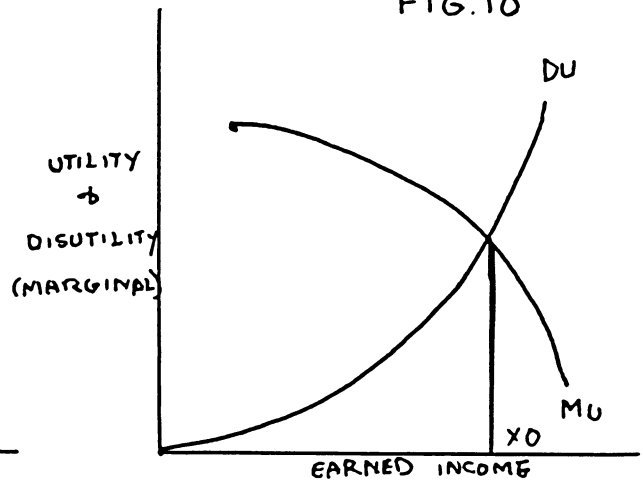


FIG. 11

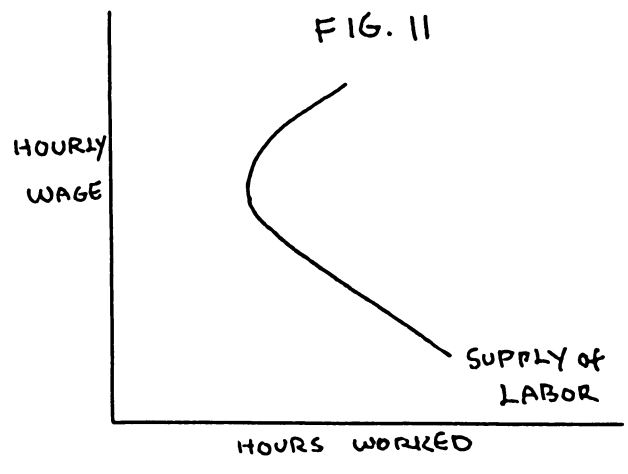


FIG. 12

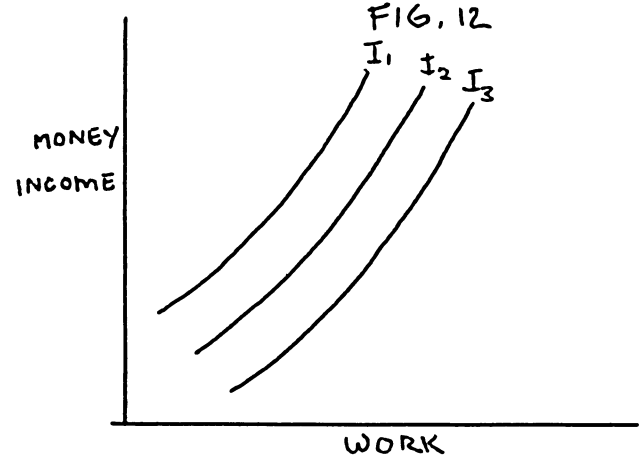
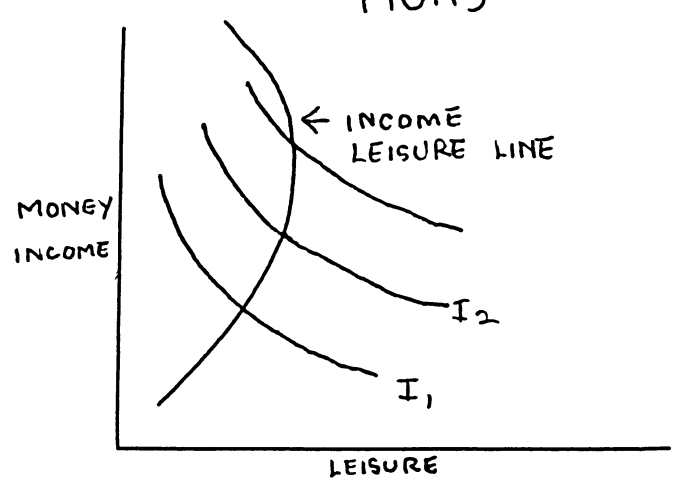


FIG. 13



curves assume, and the fact that some lines might extend into the fourth quadrant. Figure 13 indicates the income-leisure graph with leisure measured on X and income on Y. The income-leisure graph with leisure on Y and income on X is adopted for but one reason. Of all the indifference presentations on this issue it is by far the most widely used.²⁷ Therefore, since little or no advantage can be gained by deviating, the weight precedent is followed.

Conclusion

In this chapter the theoretical bases of the new theory of income tax incidence were presented. These bases were found to be those elements of total net want satisfaction which were overlooked by the proponents of the traditional theory. These bases were categorized as non-monetary elements, timing factors, and tax exempt real income sources. Leisure, pleasantness of employment, liquidity, and financial safety, were cited as non-monetary elements; consumption-savings and resource depletion decisions were enumerated as timing factors, while work as a housewife or home gardener were examples of untaxed

27. For example, Von Mering, op. cit., pp. 111 - 114; Wald, Haskell, P., "The Classical Indictment of Indirect Taxation", Quarterly Journal of Economics, Aug. 1945; Henderson, A., "The Case for Indirect Taxation", Economic Journal, Sept. 1945.

sources of real income. Since the income tax levies only upon money income, a discrimination against money income and the things it will buy and in favor of the other elements of want satisfaction arises. This could cause the quantity of productive resources supplied to vary. Three types of reactions were considered; the rent case where no change in the supply of resources occurs, the income effect which causes an increase in supply, and the substitution effect which decreases supply and thereby causes shifting.

The technique of analysis to be employed in this study relies primarily upon the use of indifference curves. These curves, and the assumptions underlying them, were explained as was the graphic portrayal of income taxes upon the indifference diagram. The incidence definition, developed in Chapter II, was given specific content as the money difference between the pre and post tax indifference curves measured at the post tax level of the non-monetary element. It was pointed out that only such an amount of money could restore the pre-tax want satisfaction. Finally alternative techniques of presentation were reviewed, and the reasons for the selection of the technique employed in this work were stated.

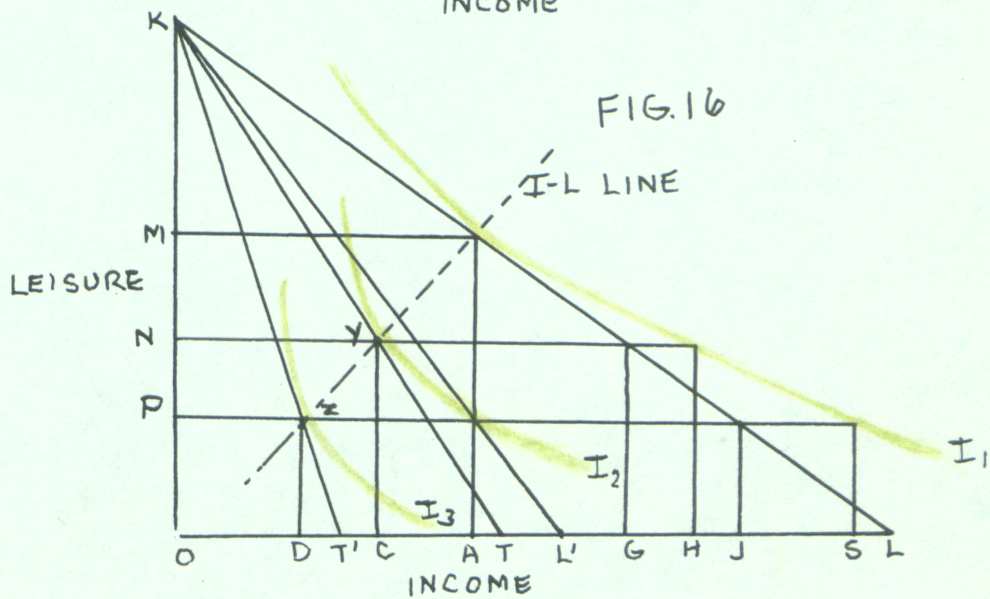
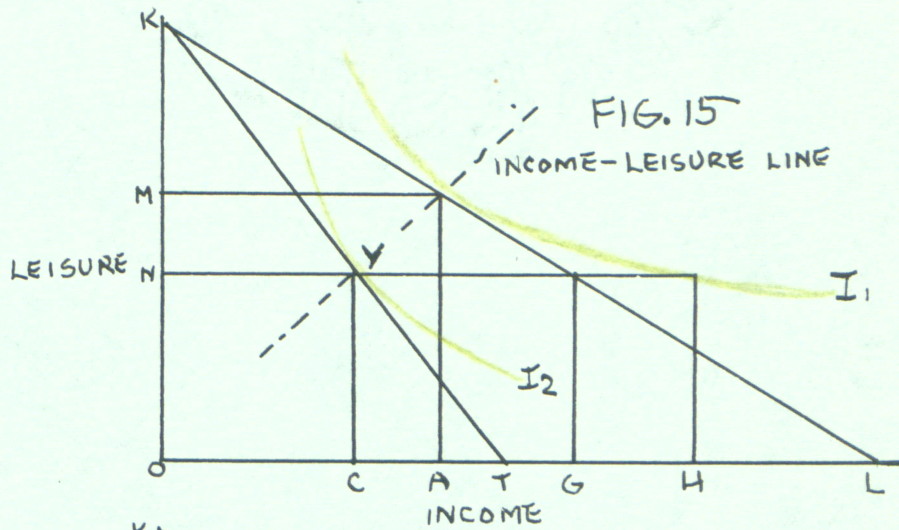
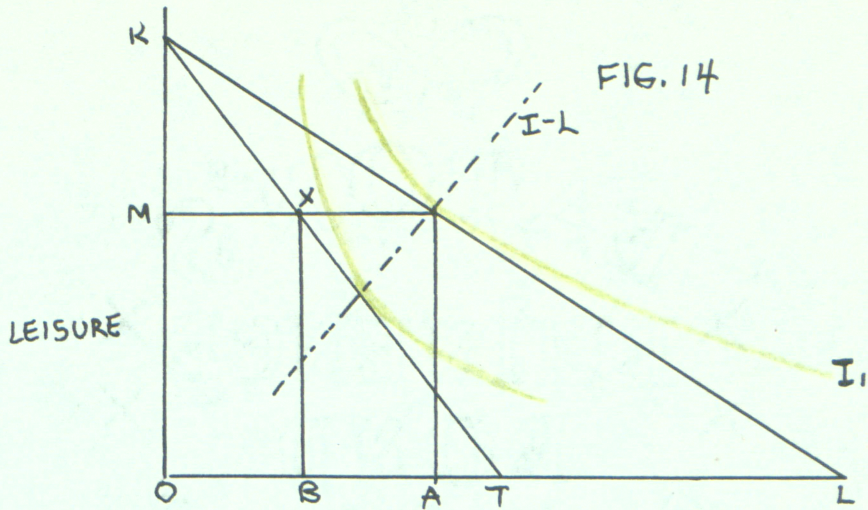
Chapter IV.

PERSONAL INCOME TAXATION AND THE SUPPLY OF PRODUCTIVE EFFORT

Having established the conceptual and methodological framework of the analysis, attention is now directed to the consequences of the personal income tax in relation to the supply of productive effort (labor). A competitive factor market is assumed except where a contrary assumption is explicitly stated. The analysis will be phrased in both short and long run time periods, and shall proceed from individual to group conclusions.

The Self-Reinforcing Incidence of the Income Tax

Market The first case to be considered deals with an individual whose earning powers are such that his income-leisure line is positively inclined throughout the relevant income range, in other words the income effect is dominant. As shown in Figure 14, where K L represent his income possibilities at his current wage, he will earn O A income and enjoy O M hours of leisure since K L is tangent to I_1 at a point indicating these quantities. Assume that a proportional income tax (graphed at 50%) is levied. In the market period, described in Figure 11, he will continue to earn O A, but will only retain O B. A B, which equals



the tax receipts, will be the market period incidence upon him.

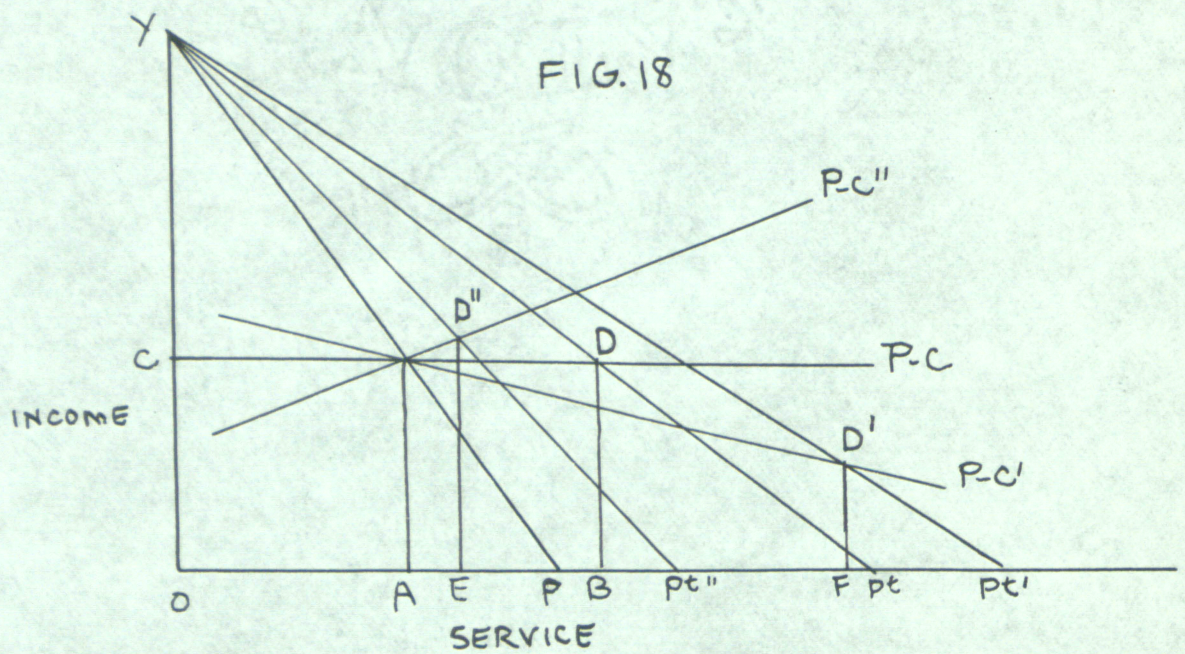
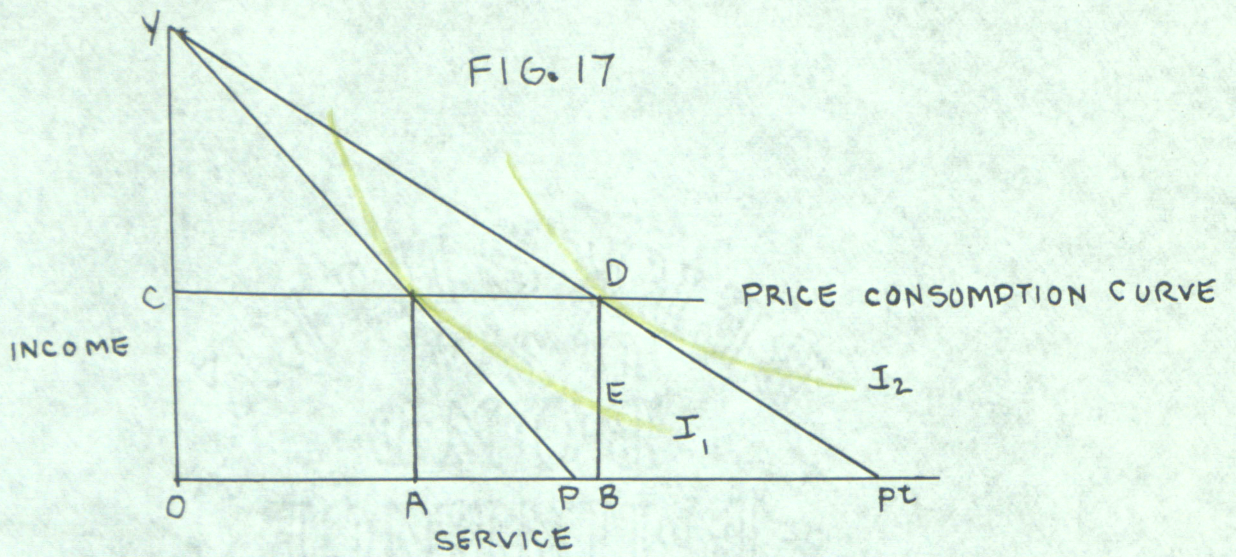
The Short Run However, this situation is not stable. K T, the income possibility after tax line, is not tangent to an indifference curve at X. Therefore, he will attempt to readjust his post tax income leisure proportions so as to maximize his position. This will be realized at the point Y in Figure 15 where K T is tangent to an indifference curve, I_2 . This point represents O N leisure and O G income of which O C is retained. Under these circumstances the tax receipts of the government would be C G and the incidence C H, which exceeds C G by G H.

Whether this situation can in reality exist depends upon the response of other suppliers of the same productive service. Should their reactions be of such a nature as to leave the wage rate unaffected, which would mean that his income effect and the income effects of other suppliers would be counterbalanced by equal substitution effects, then C H will be the incidence upon the individual under consideration. This would be individual short run incidence.

If, on the other hand, the response of other suppliers did affect the wage rate, then further analysis is required. In Figure 16 it is assumed that all suppliers of this productive service react in exactly the same manner as our individual. Therefore, as each tries to recoup in-

come by working more hours, the overall supply of the service increases, and, assuming free market conditions, the wage rate falls. This is indicated in Figure 16 by a movement from $K L$ to $K L'$, and from $K T$ to $K T'$. $K T'$ is tangent to I_3 at point Z which depicts $O P$ leisure and $O D$ after tax income. The individual short run incidence under these conditions would be $D S$ which now greatly exceed government receipts. Thus the group reaction to the initial individual burden, $A B$, has been to magnify it by $S A$. In order to simplify graphic presentation Figure 16 is drawn under the assumption of unit elasticity of demand for the service, therefore, because of this assumption gross income remains the same as before tax.

To the consumers of this productive service (or its products) this reaction is quite fortuitous. They gain as a result of the lower wage. The nature and extent of this gain can be illucidated by graphic presentation. Figure 17, unlike our income leisure graphs, is drawn to indicate the individual's pattern of indifference between money income and the productive service in question. Money income is measured along the Y axis and units of the service along X . The line $Y P$, the slope of which reflects the price of service, depicts the possible distributions which the individual consumer can make between income (other goods) and the service in question. He will elect to consumer $O A$



units of the service paying $O C$ dollars therefor, because of the tangency of $Y P$ and I_1 at the point F . The imposition of the income tax upon the suppliers of the service reduces the wage, and, therefore, the price of the service to the consumer. This price decline is shown by a movement from $Y P$ to $Y P_t$. Because of the simplifying unit elasticity of demand assumption, which here is applied to individual consumers as well as the group, the consumer's price consumption curve is horizontal. Therefore, $Y P_t$ is tangent to an indifference curve at D , which depicts the same expenditure, $O C$, but a greater number, $O B$, units of the service. The user has gained $A B$ units, which can be measured in terms of money as $D E$.¹

In Figure 18 other demand conditions are briefly dealt with. The price consumption curve $P C$ shows inelasticity of demand. Here obviously, the loss to the supplier and the gain to the user would be greater than in unitary case ($A F$ $A B$ and $D'F$ $O C$). $P C'$ shows elasticity of more than one which shows a reduction in the gain to the user and the loss to the supplier.

As noted in the previous chapter this dominance of income effect might be expected among lower income groups

1. The same technique of measurement is employed to determine the money value of this bonanza as was utilized to measure incidence.

whose limited incomes restrict their purchases to necessities and near necessities, and, who often lack an appreciation of the broad opportunities for expending money income. They, therefore, exhibit this reaction in order to strive to maintain their customary mode of living. If the competitive assumption is not realized in fact, they may be frustrated in their attempts. Strong labor organizations may prevent them from working more, or might, through their bargaining power, increase wages thus shifting part of the burden. The latter would be done, except in inflationary periods, at the expense of employment, thus transferring the burden to the unemployed.

The Long Run In the long run a number of possibilities present themselves. In the first place the indifference pattern of the individuals might change. After having acclimated themselves to a lower living standard the willingness to extend themselves in order to restore a previous standard might disappear. To the extent that this transpired the self-reinforcing aspect of the tax would also disappear. Second, as will be elaborated in a later section, the number offering this particular productive service may change. More members of households might seek employment in this or other lines, or individuals might either move into or out of this particular type of endeavor.

or. Black even envisions the possibility of tax induced population changes over very long periods.² Nevertheless, conjecture concerning the latter possibility is beyond the scope of this study.

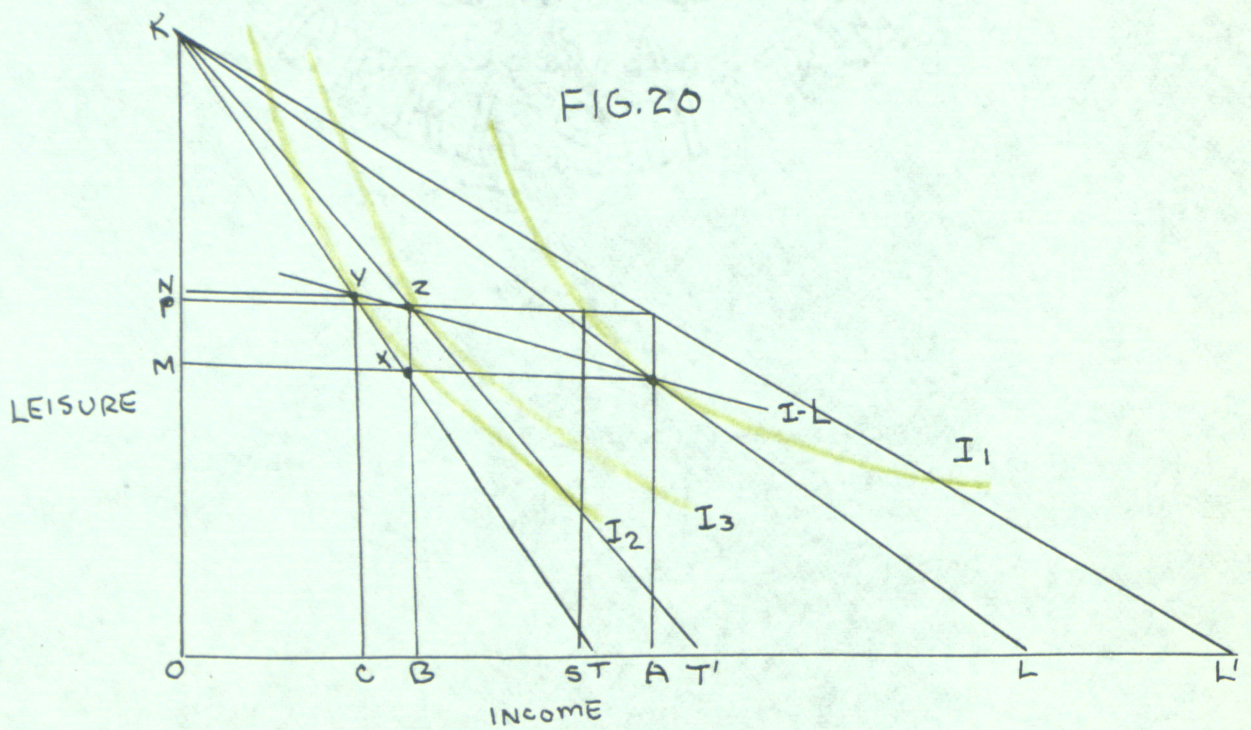
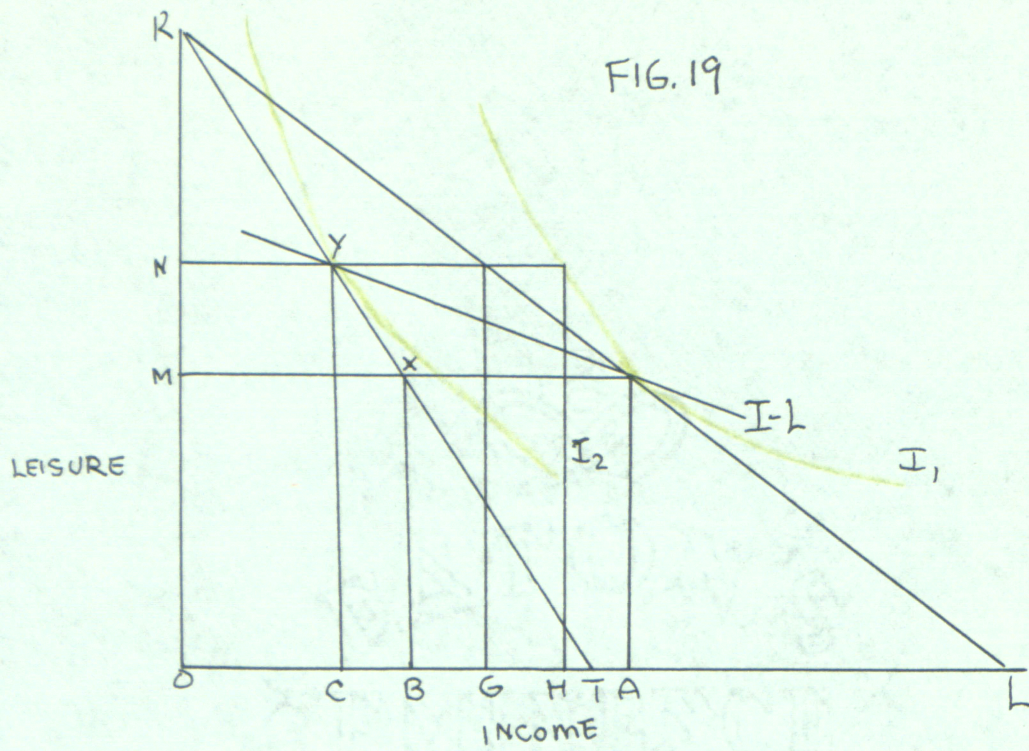
Shifting the Income Tax

The previous section dealt with the influence of the income tax upon the supply of productive effort when the income effect is strongest. This condition could be anticipated were the tax to bear significantly upon the customary living standards of low or lower-middle income families. Attention is now directed to the case of those at higher income levels where the brunt of the tax will usually impinge on elements less essential to existence. Here the substitution effect will frequently predominate, which is graphically depicted by the income leisure line being negatively inclined as in Figures 19 and 20.

In Figure 19 prior to the imposition of the tax the individual enjoys O N leisure and earns O A income. Immediately after the tax is assessed he still earns O A but keeps only O B. A B is the market period incidence which equals the receipts of the state.

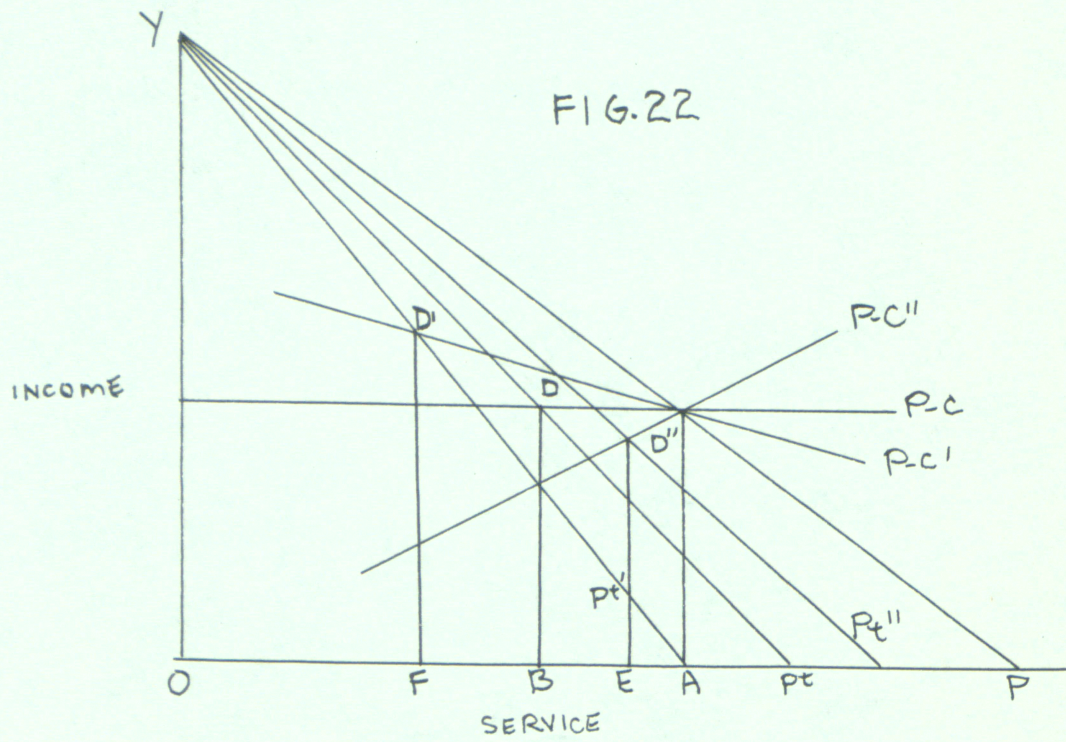
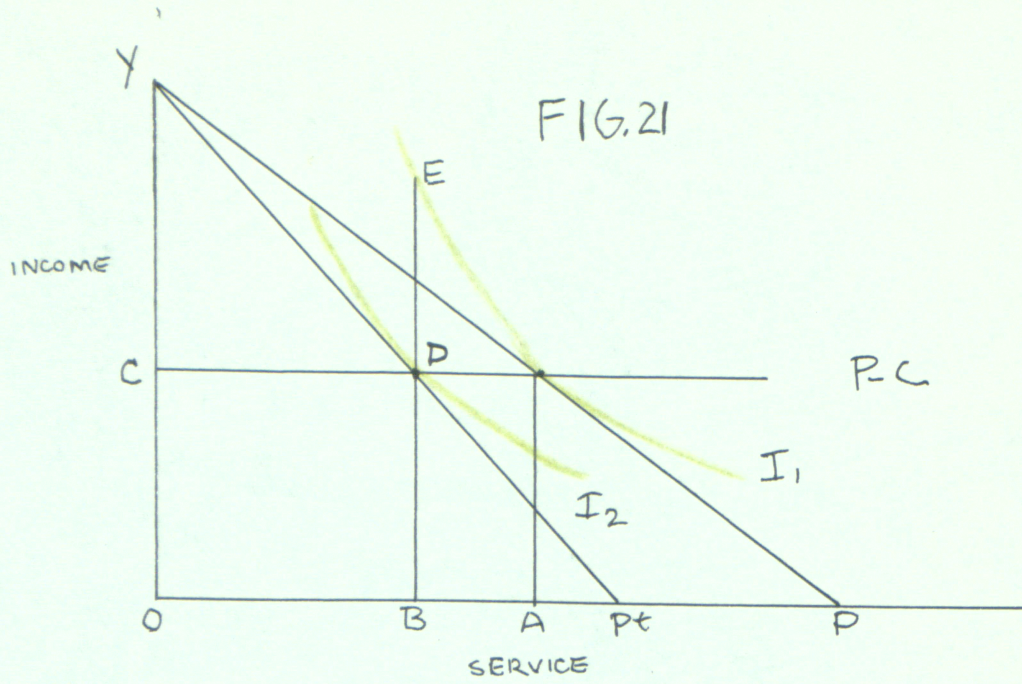
The Short Run The point X on K T, however, is less favorable than Y. Therefore, the individual will attempt to re-

2. Op. cit., Ch. XIII.



duce the amount of service he supplies. If the actions of other suppliers of the service are such that the wage rate remains unchanged, he will arrive at the point Y. Here he will earn O G and keep O C, the government collecting C G revenue. The short run incidence upon him is C H. He will now be enjoying N M more hours of leisure. If, on the other hand, all suppliers of the service react in the same manner as our individual, then the overall supply of the service will decline. Under free market conditions the wage rate would rise. This is depicted in Figure 20, where elasticity of demand of unity is once again assumed in order to simplify graphic presentation, by a movement from K L to K L' and from K T to K T'. K T' is tangent to I_3 at Z. The individual will still earn O A, because of the unit elasticity assumption, and retain O B, but he will be enjoying O P hours of leisure which is M P more than in the pre-tax equilibrium, but P N less than he would have if the shift had not taken place. The short run incidence upon him is B S which is slightly more than the tax revenue but considerably less than the pre-shift burden of A B.

The position of the user of the service is pictured in Figure 21 which like Figure 17 is a product type of graph. Before the imposition of the tax he expended O C income on O A units of the service. The price increase



occasioned by the reduced supply of effort is indicated by the movement of the price line from Y P to Y Pt. He now still spends O C but received O B units of the service. The incidence upon him is D E the money difference between I and I₂ at B. The consequence of demand elasticities other than unity are suggested in Figure 22. With a negatively inclined price consumption curve, (elasticity of less than unity) more money income, F D', would have been expended on less units, O F, than in the unity case.³ With the positively inclined price consumption curve (elastic demand) less money, E D'', would have been expended on more units of the service, O E, than in the unity case.⁴

The Long Run The long run consequences are again, as in the case of reinforcing incidence, highly speculative. The line of work in question may receive transferees from other less fortunate callings and more than its proportionate share of new workers. The possibility of this will be

3. Y Pt' indicates the greater price rise if demand is inelastic, and the intersection of P C'' and Y Pt'' the smaller price rise if demand is elastic as contrasted with the unity case.

4. The foregoing analysis was suggested by many presentations which appeared previously. Among these Wald, Art., cit., Von Mering, op. cit., pp. 111 - 114, and Black, op. cit., Ch. XII, were most influential. However, all of these go little beyond demonstrating the changes in the individual supply of effort in the short run with the wage rate fixed.

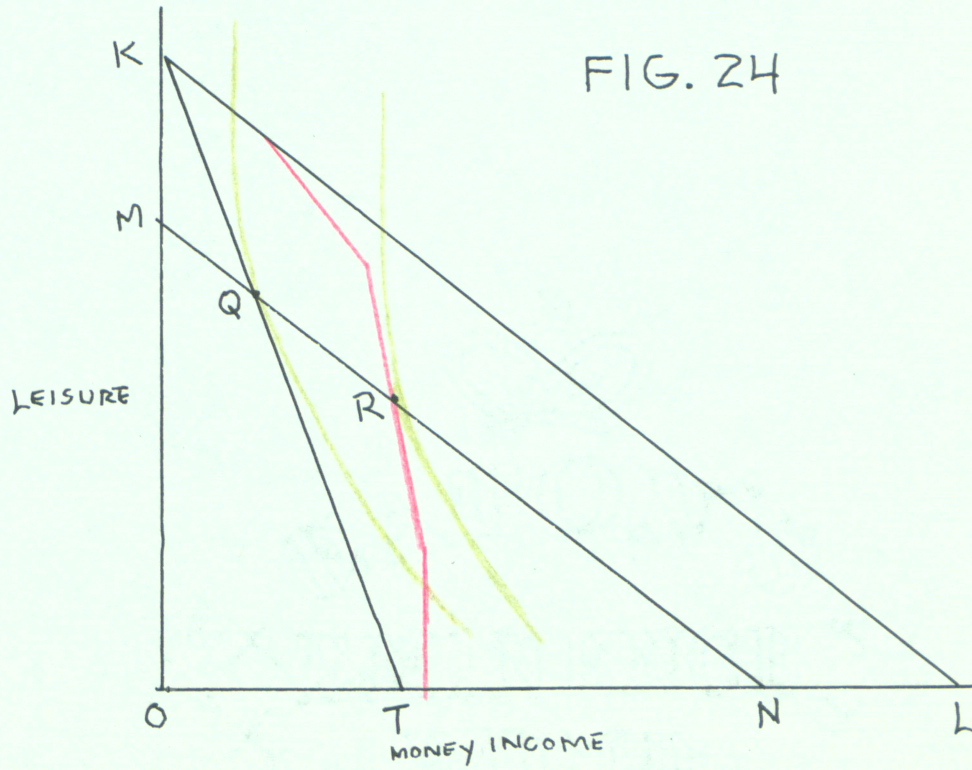
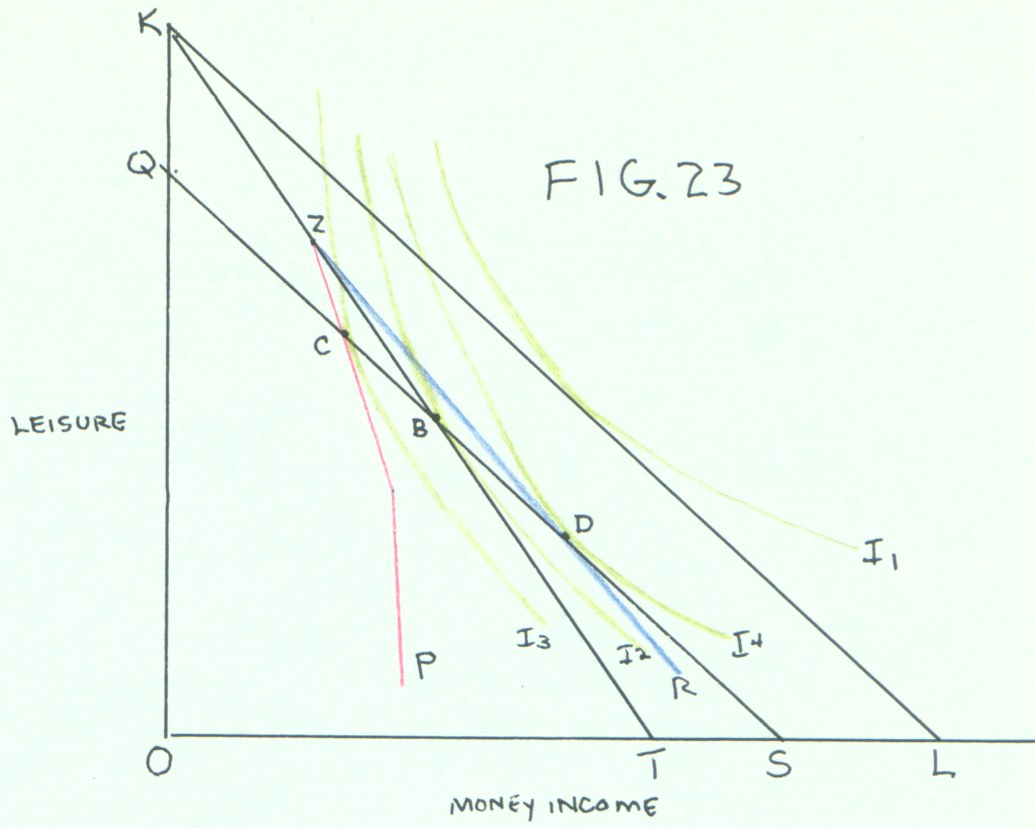
examined shortly. This would offset part of the short run shift. Should this not be possible the short run situation would coincide with the long run. Further acclimation to the new income-leisure position could, after a period of time, alter the entire indifference pattern.

The Influence of Progressive or Regressive Features

Thus far the analysis has dealt only with proportional income taxation. It is, therefore, necessary to consider the way in which progressive or regressive provisions will influence our conclusions. Let us consider several situations.

In Figure 23, K T represents the income after tax possibilities with a proportional income tax. K P and K R indicate the same for progressive and regressive tax statutes. It will be noted that the progressive tax is indicated by a line of periodically increasing negative slope, which depicts the higher increment rates of tax as income enters successively higher brackets. The regressive tax line decreases in slope illustrating lower increment rates in higher brackets. Figure 23 is drawn to indicate a situation where up until the point Z the rates are identical. After Z the progressive and regressive features set in.⁵

5. This parallels the presentation employed by Boulding to compare these types of income taxes. Op. cit., pp. 773 - 775. As noted above he draws his graphs somewhat differently.



It can easily be seen that K P is tangent to an indifference curve at a point C which represents more leisure than B, the tangency point of the proportional tax line with an indifference curve. The point for the regressive tax D, indicates less leisure. Since points B, C, and D fall on Q S which is parallel to K L, tax receipts are the same in each instance. From this we could conclude, as did Boulding, that the progressive tax reduces the supply of labor to a greater extent than a proportional or regressive tax.

This presentation is subject to two objections. As Schwartz and Moore point out the average rates of tax differ in each case.⁶ This is because the initial rates are the same over some range of income and then diverge. Second, Boulding's result depends upon a consistent indifference curve pattern over the relevant income range. Should the pattern indicate significant changes in the indifference system or should the comparative range be wide the results attained by Boulding will not be realized. Figure 24 reproduces the graph employed by Wald to demonstrate that a progressive tax may elicit more effort and be less burdensome than a proportional tax of equal yield.⁷

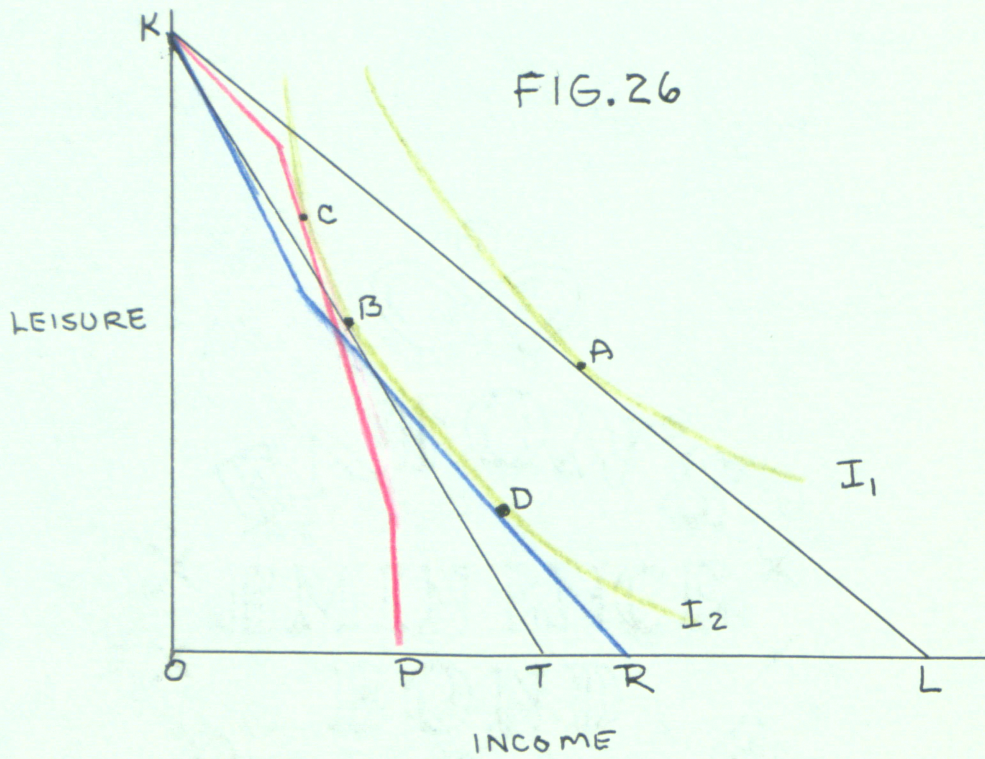
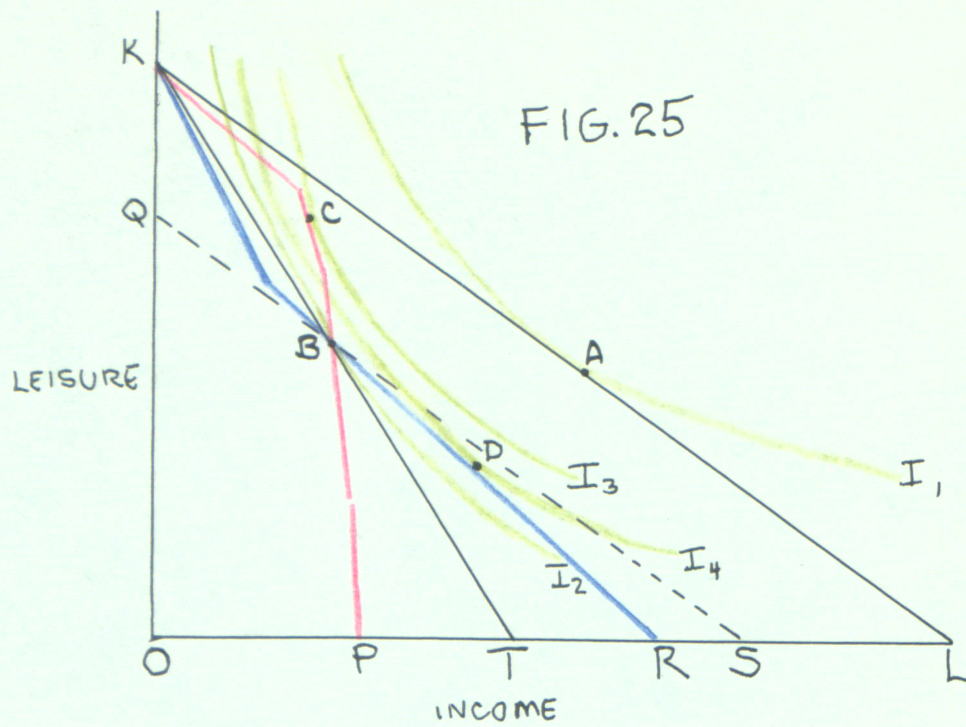
6. Art. cit., p. 144.

7. Wald, Art. cit., footnote pp. 588 - 589.

M N which is parallel to K L is the equal yield line. K R S represents the progressive tax and K Q T the proportional tax. R indicates more post tax income and more productive effort than does Q. Observe, however, that this unusual case involves a freak indifference (greater willingness to substitute income for leisure when income is small and leisure large than when income is larger and leisure less) pattern combined with a very oppressive proportional tax, the average rate of which is much higher than that of the progressive tax. This situation, though possible, is neither theoretically nor practically likely.

The second situation, which is depicted by Figure 25, shows the comparative result when equal average tax rates are attempted. To portray this the initial rates diverge but later coincide at B, the point of tangency of the proportional tax line, K T, with indifference curve I_2 . However, since K P and K R have differing slopes at B than the slope K T, they are not tangent to indifference curves at that point. K P is tangent to I_3 at C, showing more leisure and less income, while K R is tangent to I_4 at D, indicating less leisure and greater income. Thus the conclusion can be reached that the progressive tax produces greater restriction on the supply of effort than the proportional tax, while the regressive tax produces less.

However, it must be noted that while this construct-



ion attempts equal average tax rates it does not in fact achieve that objective. To have the same average rates the equilibrium points for the progressive and regressive taxes would have to lie on K T, which they do not. Although a graphic demonstration will not be presented, it is apparent that if C and D were to fall on K T, C would depict more leisure and less income than B, while D would indicate the reverse situation. This would be true, because, in the absence of a freak indifference pattern, the slopes of the indifference curves above and to the left of B are greater than the slopes below and to the right. It must be pointed out, however, that if C and D did fall on K T, tax yields would differ in each case. The only point of equal average rate and yield is B, where K T and Q S, the equal yield line, intersect. Hence, it is impossible to have a progressive tax of the same average rate and yield as a proportional tax since the slope of the progressive tax line at B is necessarily greater than the proportional line.⁸ A regressive tax, starting with an exemption could be tangent at B, although this is unlikely.

Figure 26 describes the last situation. Here the con-

8. The only exception to this proposition would occur if the indifference curve were kinked at B, showing very high complementarity at this point. This possibility was pointed out by Schwartz and Moore, art. cit., pp. 143 - 144.

struction shows the three types of income taxes creating the same real burden upon the taxpayer. This is indicated by having all three tax lines tangent to the same indifference curve, I_2 . Once again the same results obtain. C lies above and to the left of B while D lies below and to the left of B while D lies below and to the right. Considering these various possible expositions, the conclusion must be that the progressive tax is more restrictive upon income and effort than the proportional tax, while it in turn restricts more than a regressive levy. Therefore, it logically follows that the tendency to shift is enhanced by progressive tax features while regression increases the likelihood of reinforcing incidence.

Exemptions and Non-Labor Income

The influence of exempting some income from taxation is indicated in Figure 27. If an amount of income designated by F E is exempt from taxation, then the tax does not go into effect until that level of income is achieved. Assuming that the rate be the same as our proportional tax depicted by K T, then the tax line, exemption included is drawn parallel and to the right of K T. Obviously K E T' will be tangent to a higher indifference curve than K T and will leave greater post tax income. The implications of the latter are clear. The larger the after-

FIG. 27

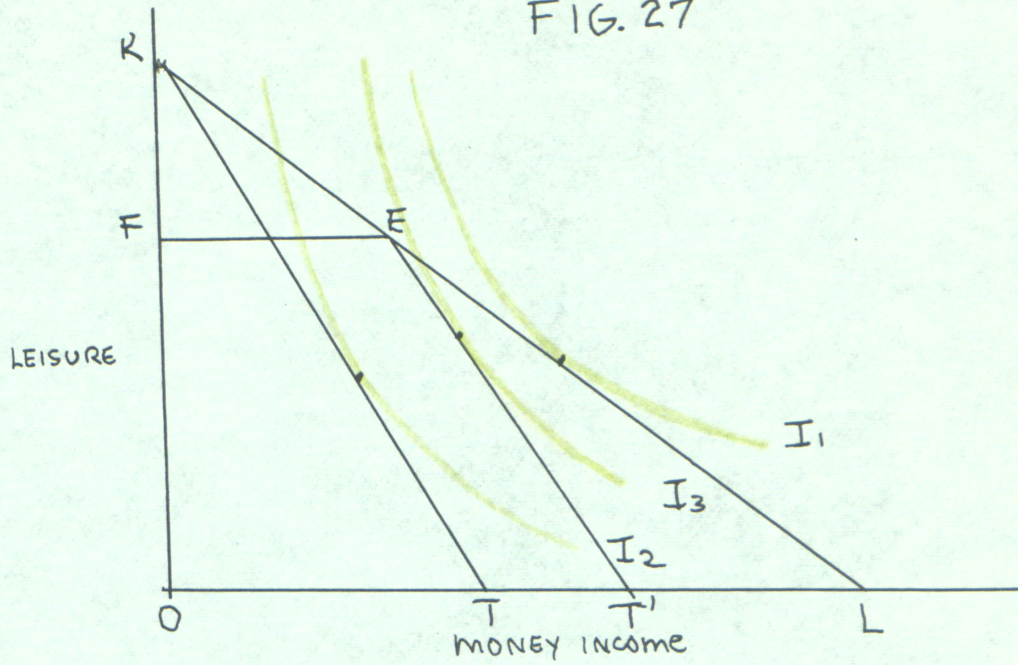
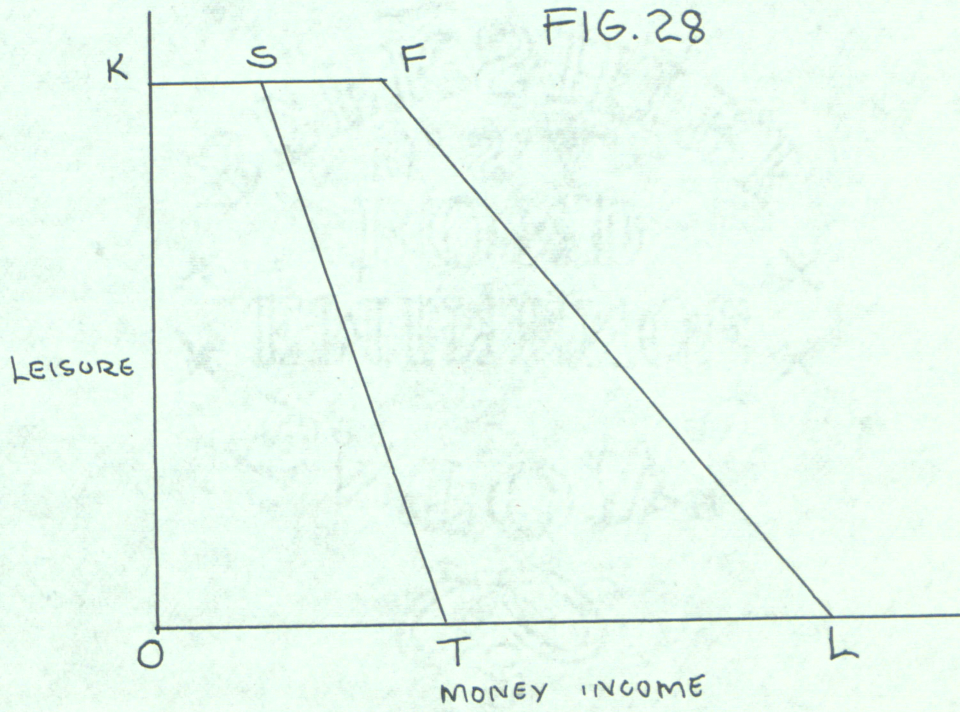


FIG. 28



tax income the less the likelihood of the income effect being superior, and the enhanced probability of the dominance of the substitution effect. Therefore, exemptions increase the changes of shifting and reduce the possibility of reinforcing incidence. It might be argued that those with larger exemptions due to dependency, illness, etc. would exhibit income effect superiority over a wider range of income than those who do not enjoy this tax relief. From this it could be claimed that the exemptions tend merely to balance preference patterns. Granting that this line of reasoning is probably valid, the fact still remains that income effect superiority would be greater without the exemptions than with them.

From all that has gone before it is apparent that the typical income tax statute, which incorporates both exemptions and sharp progression at higher income level, will in all probability bear most heavily where the substitution effect rules thus tending to reduce effort and encourage shifting.

Figure 28 describes the position of an individual who receives some income from sources other than his own labor. If the amount of this income be $K F$, then the income possibility line does not become negatively inclined until the point F . Should a proportional tax be levied the after-tax income possibility line becomes $K S T$ assuming no variation in the non-labor income. Possibili-

ties of altered non-labor income will be examined subsequently.

It has been demonstrated thus far that the income effect, which causes reinforcing incidence, and usually found in middle or lower income families, is intensified by regressive tax features and diminished by progression and exemptions. By the same token the substitution effect, which causes shifting, is intensified by progression and exemption and diluted by regression.

Income Taxation and Job Selection

Having analyzed the way in which income taxes effect the individual's willingness to supply productive effort, attention may now be directed to the type of employment which he will select. By so doing the long run analysis mentioned in previous sections, will be given more specific content.

As was pointed out in Chapter III, there are two aspects to every job, the monetary and the non-monetary. The monetary, obviously, refers to the amount and method of remuneration. The non-monetary embodies many diverse factors. The degree of physical hardship or ease, the relative safety or danger, the absence or presence of social prestige, the mating possibilities, the pleasantness or distastefulness of the site of employment, the

monotonous or interesting character of the work, all are examples of the latter.⁹ The choice of employment involves balancing these non-monetary elements against the monetary reward each potential job offers. In many instances the individual will select other than the highest paying position. It is by no means uncommon for soldiers to decide to remain in the ranks when the opportunity to obtain a commission presents itself, because they prefer not to assume the additional responsibility incumbent upon an officer. Young women from middle class homes typically shun more lucrative factory employment and take secretarial or clerical positions in the business district. Even unskilled workers may prefer outdoor jobs at lower pay in contrast to laboring in close proximity to a blast furnace.

Thus the problem is how the income tax influences the balancing of these non-monetary factors with money income possibilities. As has already been seen the key to its solution lies in the fact that the tax reduces the monetary reward without, in the first instance at least, altering the non-monetary element.¹⁰ Although, at first

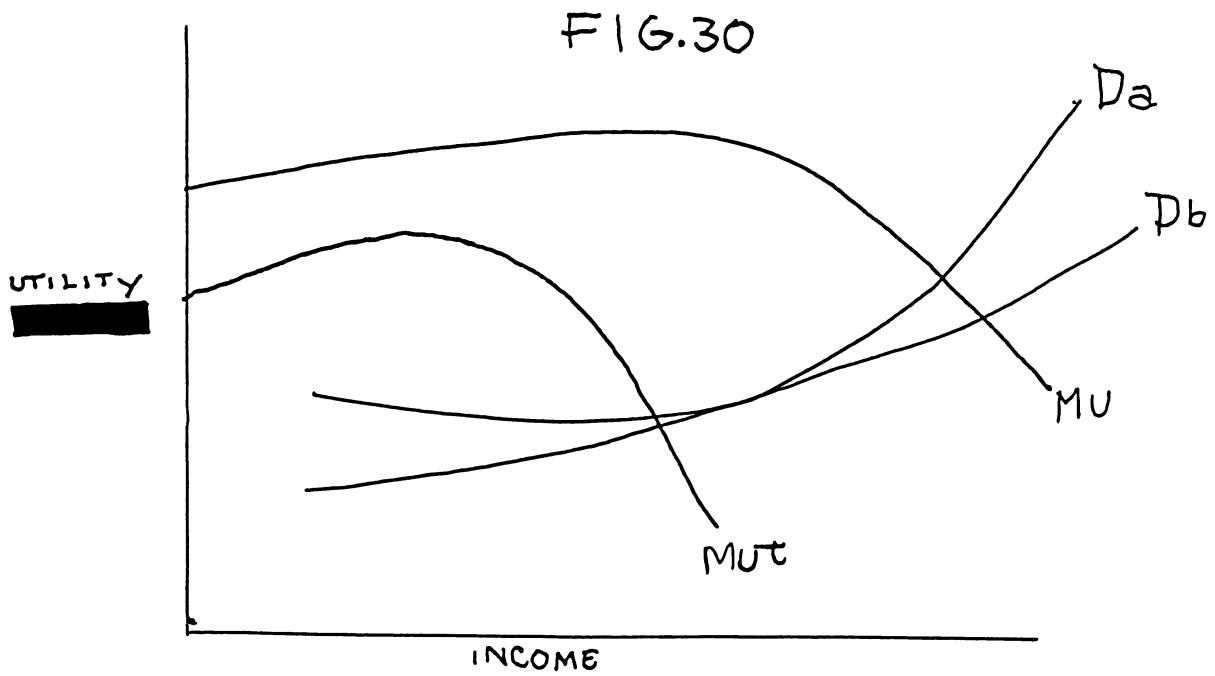
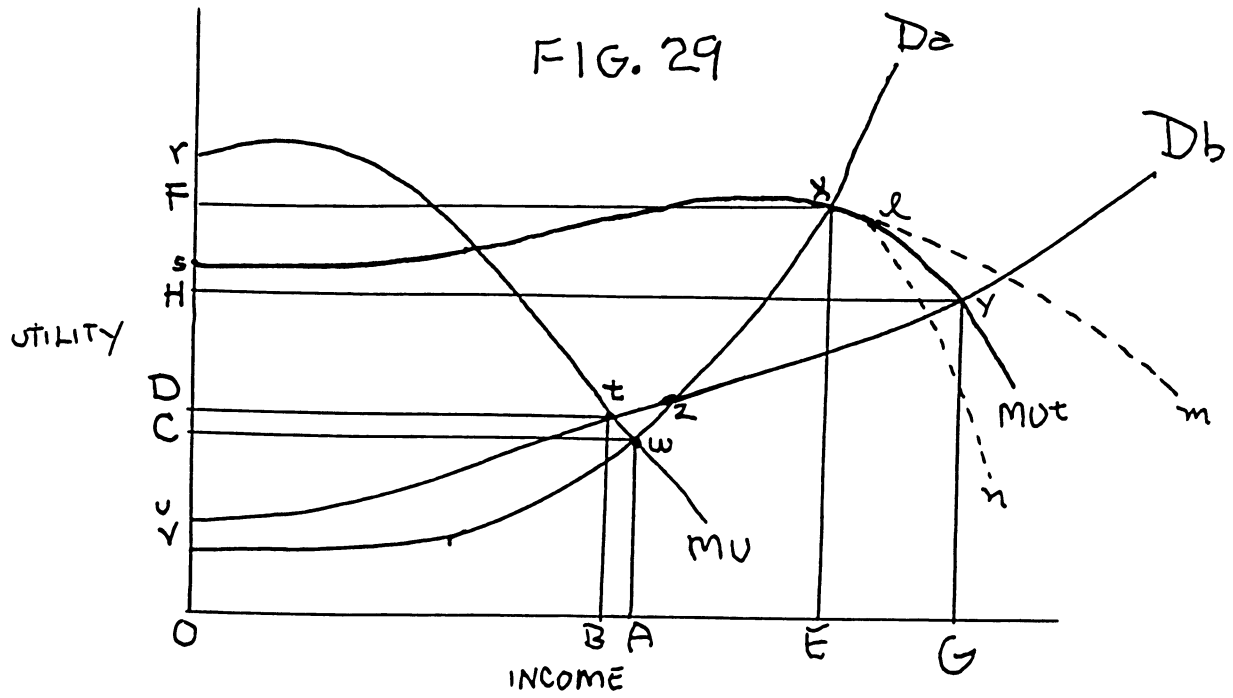
9. Marshall calls these elements the net advantages of the occupation, Principles, 8th Ed., p. 557.

10. Income taxes undoubtedly have exerted some influence upon employers to improve the non-monetary aspects of the jobs they offer. Various fringe benefits could be examples.

glance there is a temptation to conclude that workers would place more emphasis upon non-monetary factors, this would not invariably follow. True enough, the income tax, in effect, reduces the price of favorable non-monetary factors in exactly the same way as it reduces the price of leisure. But as demonstrated above this produces two effects, the substitution effect and the income effect.

If the income effect dominates, then the individual will be motivated to less desirable, but more highly paid, types of work, because utility of additional money income, after tax, will exceed the disutility of the more onerous employment. As has already been noted this predominance of the income effect is to be expected more frequently in lower income brackets. If, on the other hand, the substitution effect is paramount, the disutility of less desirable employment will exceed the utility of after tax money income, and the individual will be motivated to seek more pleasant types of work.

The free choice of occupation can be illustrated graphically. In so doing the indifference curve technique will not be employed at first, and utility graphs will be substituted. It is felt that the analysis will be more easily comprehended if this procedure is followed. In Figure 29 money income is measured along the X axis, and utility and disutility along Y. M U represents the mar-



ginal utility of money income, before tax, to the individual. Da and Db depict the marginal disutility of earning money income in two different occupations, A and B, between which the individual can choose. Occupation A is more pleasant than B but is limited as to income opportunities. For this reason after certain levels of income have been reached the disutility curve rises sharply. This is probably the case in such lines as teaching and other institutional positions. Occupation B, on the other hand, although less desirable is not restricted as to income at levels as low as A. Therefore, the disutility curve of B rises less rapidly. This would probably be true of selling. Assuming the worker will work until the marginal utility of money income is equal to the marginal disutility of earning additional income, the amount of effort he will supply and the occupation he will choose can be determined.¹¹ If he were to work at job B, he would earn O B income, and the marginal disutility of the last increment of income would be O D. Should he change to A his income would be greater (O A greater than O B by A B) and the marginal disutility less (O C less than O D by C D). Obviously occupation A is preferable and will be chosen if our individual is rational, since the total utility area exceeds the

11. Although our graph indirectly shows the amount of labor which will be offered, it is not important to this point since it has been analyzed above.

disutility area in occupation A by $r w v$, whereas in B this excess is only $r t u$. Thus A is preferable by $t w v u$.

The Income Effect If an income tax is levied, the marginal utility of money income changes because only a part of each dollar earned accrues to the worker. In Figure 29 we assume the income effect to be dominant. There the peak of the after tax utility curve ($M U t$) shifts to the right. Under the circumstances depicted occupation B would be preferable. If the individual stayed in A, his income would be $O E$ and the marginal disutility $O F$. If he switched to B income would be $O G$ and disutility $O H$. Now the surplus of utility over disutility in A is $S X V$ and in B, $S Y U$. $S Y U$ is greater than $S X V$ since $X Y Z$ is greater than $Z V U$. Therefore, occupation B is now superior. As a result of the income tax our individual will switch from the more pleasant to the less desirable job in order to recoup income. Such phenomena are by no means unknown when a tax presses hard on the family standard of living.

The Substitution Effect Whereas Figure 29 depicts the case of an individual in which the income effect is strongest, Figure 30 indicates the dominance of the substitution effect. $M U t$, here, lies below and to the left of $M U$. Prior to the imposition of the tax occupation B would have

been preferred. After the tax A becomes more desirable. Thus a trend to more pleasant work would accompany the imposition of the tax on those exhibiting substitution effects.

Progression and Regression and the Choice of Jobs If the tax is progressive M U t in all cases will fall more rapidly than if the tax were proportional. If regressive it would decline less rapidly. In Figure 29 let M U t depict the pattern of marginal utility with a proportional income tax. If at some point l the tax should become progressive, the balance of the utility curve could be depicted by the dotted line l n. Should it become regressive at l, the curve would follow a pattern such as l m. In the case depicted in Figure 29 (dominance of the income effect) obviously the progressive tax will decrease Z X Y, while the regressive tax will increase it. Since Z X Y must exceed Z V U if the individual is to change from occupation A to B the progressive feature reduces the likelihood of such a transfer while regression encourages it. In the case illustrated in Figure 30 (substitution effect superior) progression encourages the change from B to A while regression discourages. Thus it may be concluded that progression encourages emphasis upon non-monetary values while regression stimulates accenting pecuniary gain.

The following generalizations in regard to shifting are now possible. If the tax bears heavily on the lower in-

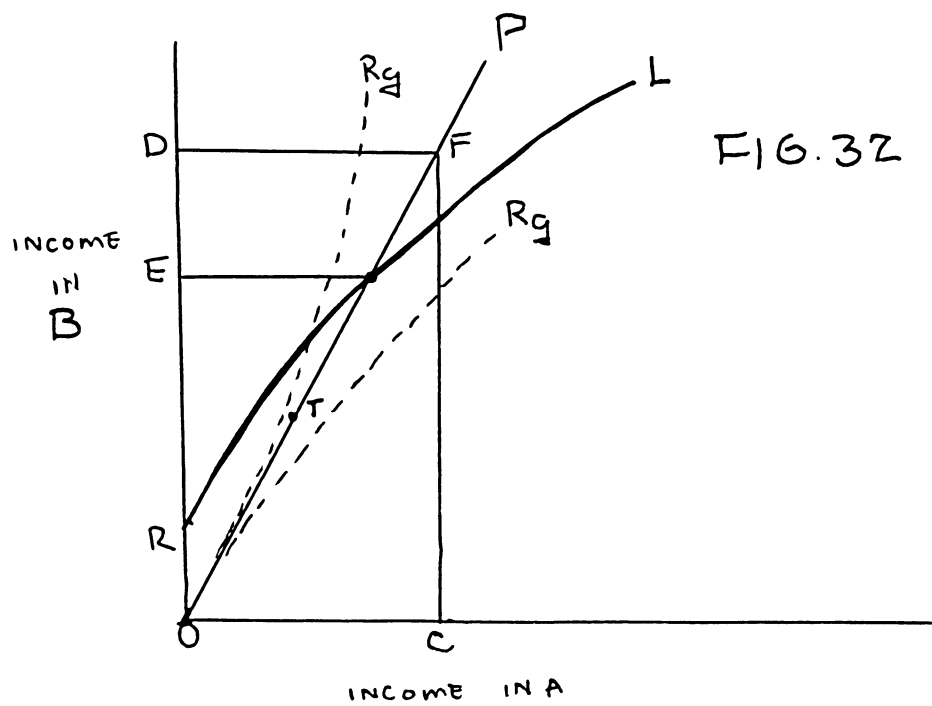
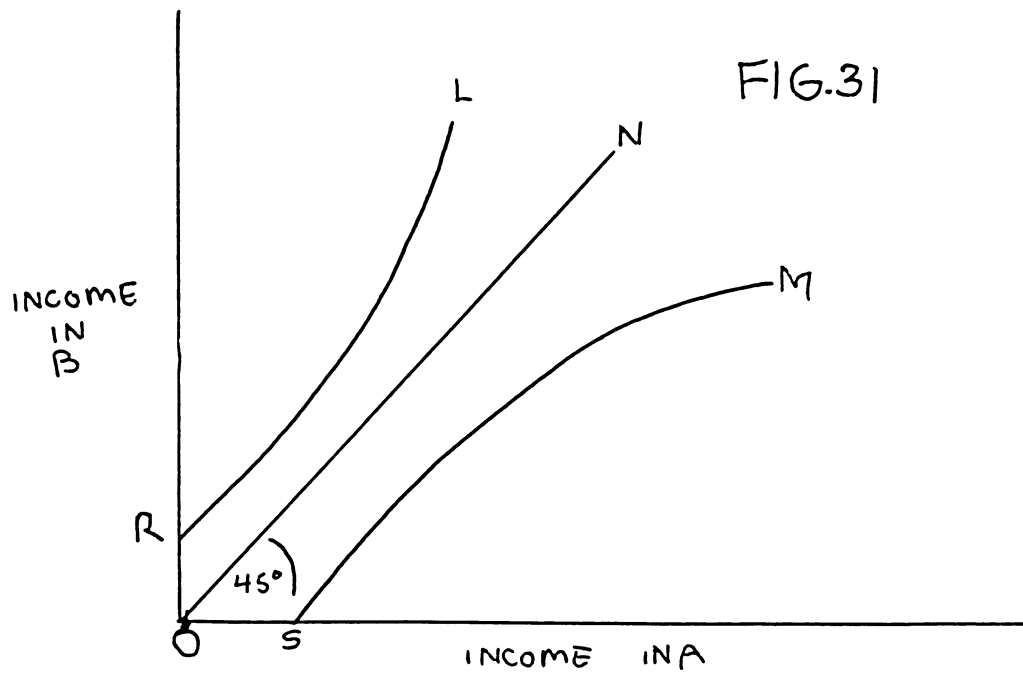
come group, i.e. the income effect is dominant, movement from more to less desirable employment would be expected. Pay rates in the former would rise thus shifting part of the burden, while rates in the latter would fall intensifying the burden. A reduction in wage differentials occasioned by non-monetary influences would tend to come about. Should the substitution effect predominate, which would be expected when exemptions of any size are allowed, a movement to pleasant employment could be anticipated. This would reduce pay rates in desirable jobs, intensifying burden, while increasing them in onerous employment thus engendering some shifting. The differential between employments would be expected to widen. As we have observed above, exemptions and tax progression work in the same direction as the substitution effect while regression acts similarly to the income effect. The consequence of the typical income tax structure, which embrace both exemptions and progression, would, therefore, be to discourage unpleasant employment and widen wage differentials.

Limitations of the Analysis The above analysis assumes that the individual is free to alter his employment. In any real situation many forces may deter him from doing so. Long established seniority, group or community ties, or sheer inertia, among others might be cited. However, the

applicability of our reasoning need not be confined to those already in the working force. Young people, planning their careers, or those unemployed and seeking new positions, can be envisioned as reacting in the manner this line of reasoning suggests. For them the restrictions on free choices are not nearly so binding as for established workers..

Job Choice Using the Indifference Curve Technique Our graphic presentation of the foregoing analysis could easily come under attack from those who decry the utilitarian technique. This is especially true in this instance because not only are marginal utility functions employed, but also the reasoning utilizes total utility area comparisons. Fortunately, however, the validity of the conclusions is not dependent upon the graphic exposition couched in utilitarian terms. The latter was selected only because it was felt that it best portrayed the operative factors in an understandable manner, not because it was the only analytical route open. That similar results can be realized with an indifference analysis should be clear.

In Figure 31, income in occupation A is measured along the horizontal axis while income in occupation B is measured vertically. It is assumed that our individual is capable of performing both jobs, but must choose one



or the other and work exclusively in that calling.¹² If he had no reason to prefer either occupation, in other words, non-monetary factors would be of equal value in both jobs, the choice would be a matter of indifference as long as the pay was the same in both callings. Under these circumstances O N would be the indifference curve and he would choose that job which offered the highest pay. Should one occupation be deemed superior, because of more favorable non-monetary elements, then the indifference curve would vary from the 45 equal pay line, O N. R L depicts a preference for occupation A so that it takes a larger income in B to constitute the equivalent of a given income in A. For him to choose B the point representing the actual incomes in A and B would have to lie above R L, otherwise he would choose A. S M depicts the indifference curve if occupation B were preferred.

In Figure 29 we portray the situation of the earlier analysis. Occupation A is more pleasant but is limited as to income possibilities. R L shows a preference for A at lower income levels, but declines in slope owing to the

12. The latter is necessary since the usual indifference presentation where the curves represent equivalent combinations, would have much less realistic significance. In other words, ordinarily a person must choose one type of work rather than being free to combine different occupations in varying proportions.

difficulty of expanding income. If the rates of pay are such that O C can be earned in A and O D in B, the point F lies above R L and occupation B would be elected. The line O P represents the loci of incomes after tax, if a proportional income tax were levied. It can be seen if the tax were less than D E divided by O D, then the income after tax point would still lie above R L and no change of occupation would occur. Were the percentage greater, the worker would change from occupation B to A.

Since progressive tax bears more heavily on the higher paid occupation the loci of income after tax points would lie to the right of O P, on our graph indicated by O P g. It is evident that the possibility of transfer is greater under this condition. Since a regressive tax bears less heavily on the more highly paid occupation our line becomes O R g and job transfer less probable.¹³

Income Taxation and the Decision to Work

Not only will income taxation influence the type of work selected, it may also be of importance in forming the decision on whether to work or not. This decision is possible for two reasons. In the first place, if the con-

13. This entire indifference curve assumes that the amount of work in both lines is out of the individual's control. Should he be able to vary the quantity of work in both occupations our conclusions would not be materially altered, but graphic presentations would require more than two dimensions.

ception of the policy forming unit is expanded to include the entire family, it is clear that the number of members of the family seeking outside employment is subject to variation. Thus the decision may involve whether the wife or some elder member of the family will work or not. Second, if the individual has sources of income other than wages, he can fall back on those sources should he feel seeking employment to be ill-advised. For example, income from invested savings may be sufficient to maintain a reasonable standard of living, or unemployment compensation or pensions might also make this provision.

The Income Effect Should the tax bear heavily upon the family standard of living, more members of the family may seek employment. Thus the supply of labor would be increased. In addition those living on other sources of income may find that their customary way of life is jeopardized by the tax induced reduction of income. Therefore, they may seek employment rather than living upon investment income alone. That both of these situations possess reality is apparent from current observation.

The Substitution Effect If the standard of living of the family is not seriously involved, the result of income taxation may be such as to make outside employment of the wife inadvisable. This is especially true since the wife,

as a housekeeper, may earn real income which is not subject to income taxation. Further the sources of income other than wages may be sufficient after tax to sustain the individual's livelihood. Consequently, he may elect not to work and pay more income taxes. For example, individuals eligible for unemployment compensation have been known to weigh income after tax against the tax free relief checks in deciding whether to take a job. If the gross salary should be \$35.00 per week and the relief payment \$20.00, the individual would figure that he would be working for \$15.00 per week. Should the income tax be 20%, then the net wage would be reduced to \$28.00, and the net advantage derived from working would be only \$8.00. This could easily convince the individual to go on relief rather than working. Both of these substitution elements are reinforced by progression which would tax the increment derived from work more heavily than the other source of income. Here again progression is conducive to shifting.

Conclusion

In this chapter the influence of the income tax upon the supply of productive effort has been analyzed. Dominance of the income effect, which is to be expected primarily among lower income groups whose way of life might

be imperiled, was seen to increase the amount of work which the individual is willing to do. It will also motivate him to seek more highly paid but less desirable employment. Further it could induce people who otherwise would not seek employment to do so. The substitution effect, if dominant, would operate in the opposite direction. Willingness to work would be reduced, more pleasant though less highly paid jobs would be sought, and some people would be expected to withdraw from the working force. Should an income effect dominate a factor market the incidence of the tax would be reinforced and a bonanza would be conferred upon the consumer. Superiority of the substitution in the market would reduce the supply and cause shifting. Progression, exemptions, and untaxed income sources were seen to increase the possibility of substitution.

Chapter V

INCOME TAXATION AND THE SUPPLY OF CAPITAL

Having considered the relationship between income taxation and the supply of productive human effort, analysis can now be directed to the manner in which this type of levy influences the supply and composition of that group of agents usually categorized under the term capital. It is with extreme misgivings and a feeling of considerable humility that one enters into such a confused, controversial, and abstruse realm of economic theorizing. Nevertheless, no discussion of income taxation could begin to pretend adequacy were such a vital issue omitted or treated superficially. An attempt will be made to avoid engulfment in the arguments and counter-arguments, claims and counter-claims of those, on the one hand, who eulogize time preference interest theories, and the liquidity preference school, on the other. It is hoped that this difficult objective may be realized by first considering the consequences of the tax in relation to the supply of savings, and then evaluating its influence upon liquidity preference. The implications in regard to shifting and incidence will be pointed out for both cases. Thereafter, the analysis will inquire into the qualitative influence of income taxation upon the existing capital supply, referring both to loan term factors and to risk elements.

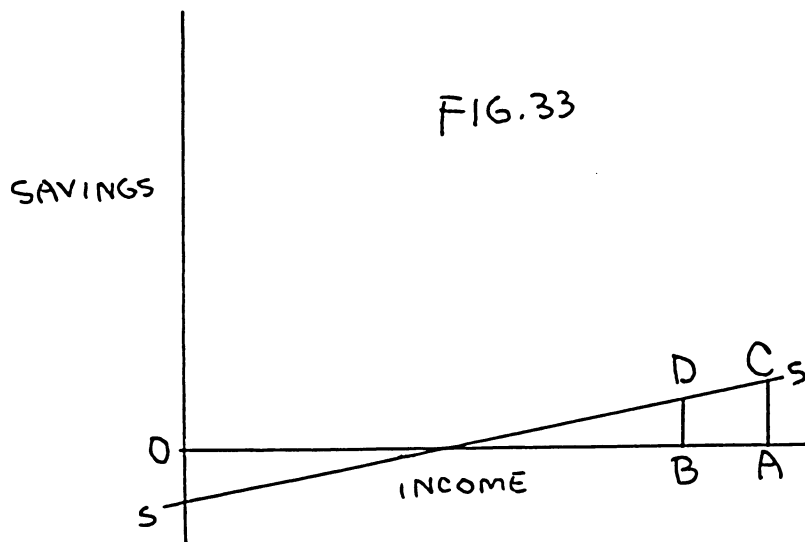
In this manner conclusions useful to both groups may be developed.

The Income Tax and the Supply of Savings

Two primary schools of thought concerning the supply of savings have enjoyed wide popularity in recent years. The Classicists would have us believe that savings are a function of the rate of interest, while the followers of Lord Keynes maintain savings to be a function of income. Since this is not a treatise on interest or income theory, an evaluation of the relative merits of these widely divergent presentations shall not be attempted, and it will be assumed that both contribute something worthwhile to an explanation of the savings process. Therefore, consideration will be given to the influence of the income tax upon savings from both points of view. Further, although the conclusions may indicate changing levels of national income in response to the tax, the analysis will not be pursued in that direction. This seems justified, as argued above in Chapter I, since the subject of this dissertation is not national income theory and because that task has been adequately performed elsewhere.

The Influence of the Tax - Savings Assumed to be a Function of Income The Keynesian proposition that saving is a function of income, and that the proportion of income

saved rises with increasing income, is quite familiar. A typical graphic presentation of the relationship between income and saving for an individual, which assumes the individual's gross income to be fixed at O A, is given in Figure 33,



where individual income is measured along the X axis and savings and dis-savings are measured along Y'. The savings curve S S indicates dis-saving at low income levels and relatively greater amounts of saving as income increas-

1. The assumption of fixed gross income simplifies graphic presentation. The possibilities of altered earned income were considered in the previous chapter and need not be repeated here. In addition, combining those possibilities with this analysis would not alter its conclusion except in the extreme case where the income effect would be so powerful that net income after tax would be greater than untaxed income prior to the imposition of the tax.

es. Should the individual's income in the absence of income taxation be O A he would then save A C. Should an income tax of A B be levied upon him then his after tax income would be O B and he would save only B D. Hence the obvious conclusion is reached that income taxation reduces saving because it reduces net income of which saving is a function. The typical income tax, embodying both exemptions and progression, bears very heavily upon saving, according to this line of reasoning, because the tax is assessed primarily upon those who save a large proportion of income.

The Influence of the Tax - Savings Assumed to be a Function of Interest Although the logic of the Keynesian argument is convincing as far as its assumptions can be accepted, this does not preclude valuable analysis along more conventional lines. Income taxation not only influences saving because it alters the income from which saving originates, but it also changes the return to be anticipated from the investment of savings. Hence the individual who contemplates saving as a source of future income cannot, if the tax is expected to continue, reason in terms of pre-tax interest or dividend rates, but must reach his decision in terms of rates of return net of taxes.

This decision regarding the amount of saving and

the influence of the tax thereon can be analyzed graphically. It is assumed that the individual's current net income has been adjusted to all current conditions, including income taxation, and is, therefore fixed. The point at issue is how he will distribute this income between consumption expenditures and savings. Since this analysis assumes that the amount of savings is a function of the interest rate, the reason an individual saves is to receive income savings. Hence he weighs current consumption, on the one hand, against the income which he expects to receive in the future as a result of the investment of his current savings on the other. In Figure 34 first of these variables, current consumption, is measured along the Y axis. O K is assumed to be the total income of the individual and, therefore, assuming no deterioration of past savings, his maximum consumption. Should he consume less than O K, for example O C, then the difference between this consumption and total income would be his current saving, C K. The total income anticipated from the investment of current savings is measured along the X axis. At a given rate of interest the anticipated future income possibilities from different amounts of savings are measured along a straight negatively inclined line, which can be called the substitution line. For example K L shows that if there were no savings, no future income would be expected,

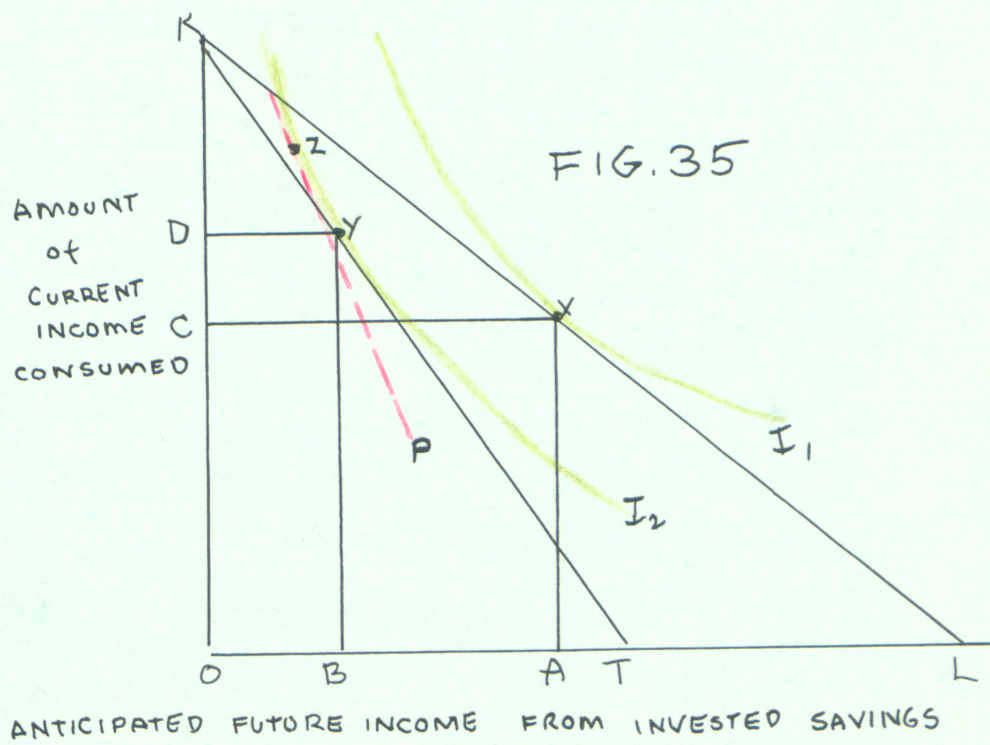
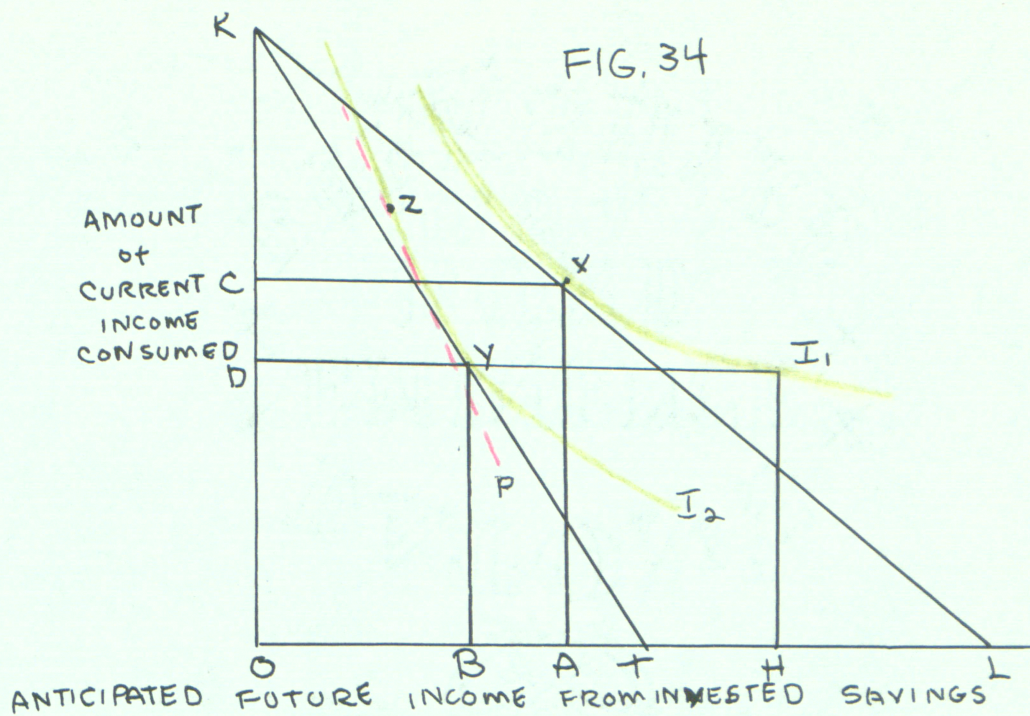
and that if all income were saved, O L future income would be anticipated. The varying amounts of expected income with different quantities of savings are shown along K L. Were the interest rate lower, then less future income would be expected at all levels of saving, and the substitution line would lie to the left of K L. At higher rates it would fall more rapidly than K L. We shall assume that combinations of current consumption and expected future income are preferable to either consuming or saving all of current income. Therefore, the indifference curves, which show equally desirable combinations of current consumption and future income, are convex to the origin.

If the individual anticipated no reduction of expected income occasioned by income taxation, he would achieve the best combination of consumption and future income at the point x where K L is tangent to I_1 . He would consume O C, and save C K, and anticipate O A future income. However, should he expect a proportional income tax to be in effect the future substitution possibilities would be measured along K T since he could expect to keep only a part of each dollar of anticipated income. Anticipating K T he would maximize his position at Y, consuming O D and saving D K while expecting O B future net income. In this instance he increases his savings by D C because of the prospect of the tax, increasing thereby both the abso-

lute amount of saving and the proportion of net income which is saved. This is the already familiar income effect. Such a result is reasonable. If an individual is saving in order to provide income for some future time at which he will not be working, to make adequate provision he must think in terms of net realizable income. If a tax should decrease this expected net income, then greater absolute amount of saving is required to accomplish his purpose. It is even conceivable, if he were a member of a "renter" class, that he might save more than he would in the absence of all income taxes, both present and future, although this would be unlikely, unless future tax rates were expected to be considerably higher than current schedules.

The dashed line, P, tangent to I_2 at Z indicates a progressive tax of equal real burden. As can be seen Z lies above Y, thus demonstrating that the progressive feature tends to offset the result which would be expected with the proportional tax since less would be saved at Z than at Y. Although, as graphed, Z lies above X, this need not always be the case.

The short run anticipated incidence, if the interest rates should remain unchanged, would be B H. If reactions of the type illustrated in Figure 34 were general, a fall in interest rates might be expected, and the phenomenon of



reinforcing incidence might appear. This, however, is unlikely since the supply of money savings comes from many different types of individuals whose reactions could well be expected to differ. Also, although it shall not be considered at length here, changes in national income might well occur. Further, a contraction of credit might act as an additional offset. At best it can be concluded that this reaction creates a tendency toward reinforcing incidence, which tendency may well be offset.

Figure 35 illustrates dominance of the substitution effect. Here the indifference pattern indicates greater willingness to substitute consumption for future income than that of Figure 34. If no tax were expected, equilibrium would be realized at X, corresponding to O C consumption, C K saving, and O A expected income. With the anticipation of the proportional tax, O D would be consumed and only D K saved with O B net income expected. As a result of the anticipation of the tax, saving would fall by D C, thus creating a tendency toward shifting. This might be offset by the action of those who behave in the manner indicated in Figure 34. Unlike the case of the supply a particular type of productive effort, where some uniformity of behavior among those supplying a particular type of labor could be expected, because of the probability of similarity of backgrounds and modes of living, as noted above, the sources of money

saving are quite diverse thus causing the income and substitution effects to meet in the same market and counteract one another. However, since ours is not a society of renters and, therefore, sources other than invested savings are relied upon for income by most people, there is a strong presumption in favor of substitution effect dominance.

In Figure 35 an equal burden progressive tax is again depicted by a dotted line tangent to I_2 . This point of tangency necessarily lies above X and Y, demonstrating that progression strengthens the substitution reaction. Since progression also offsets the income reaction, as noted above, there is a strong presumption that it is definitely conducive to shifting. Again, caution is indicated since this is only a tendency which may not in fact reach fruition. As Somers so well points out, a fall in money savings need not necessarily result in a decline in capital formation in an economy with a banking system so amply supplied with credit facilities.² Nevertheless, this does not mean that a tendency to shift by reducing voluntary saving, which has been counteracted by a credit expansion, is unimportant. The implication is, of course, that an attempt to curtail voluntary savings is offset by forced savings. The disequilibrating possibilities of such an eventuality

2. Somers, op. cit., p. 184.

are well known to the readers of Hayek and other monetary emphasis cycle theorists.

The foregoing analysis was graphed for an individual who was relying upon the return from invested savings as a sole source of future income. Should interest and dividends merely play a supplementary role, then the point of equilibrium would lie further to the right on our graphs where the probability of substitution would be greater. This would obviously be true because income effect pressures are greatest when income is low and living standards are imperiled. This reinforces rather than modifying of conclusion of a tendency toward shifting under most situations.³

Conclusions Regarding Income Taxation and the Supply of Savings

The influence of income taxation upon the supply of savings has been analyzed from two points of view. Assuming savings to be a function of income, then income taxation, which reduces income, necessarily diminishes the supply of saving. Considering savings to be a function of the rate of interest, it was found that savings might either increase or decrease, because ours is a society

3. The above analysis was in part suggested by verbal passages in other works, Von Mering, op. cit., pp. 197 - 199, Black, op. cit., pp. 181 - 183 and Somers, op. cit., p. 183.

where investment income is usually a supplementary source to most individuals and which has progressive taxation. If the two savings theories are combined, and saving is considered to be a function of both income and interest, the presumption in favor of a reduction in supply, and, therefore, a tendency to shifting, becomes overwhelming.

Income Taxation and Liquidity Preference

Income taxation not only will influence the amount an individual will save, it will also enter into the determination of the disposition of his savings, both past and present. As Von Mering points out this influence can be twofold: it may alter first, the willingness to turn savings into investment; and second, the distribution of investment among outlets of varying risk.⁴ The former shall be called the effect upon liquidity preference, and the latter, which will be considered in the next section, the effect upon risk bearing. This may be an over-simplification in that certain risk factors, such as changes in the interest rate, are included in the liquidity preference concept. However, as pointed out in Chapter III, the risk of interest rate changes and the consequent inability to convert into cash at par is fundamentally different from

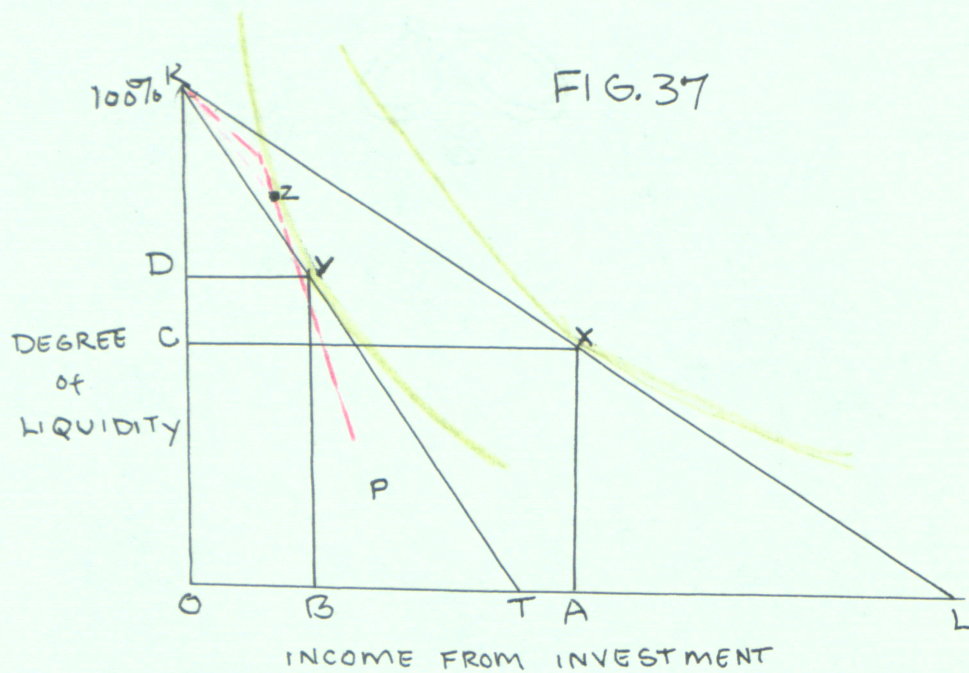
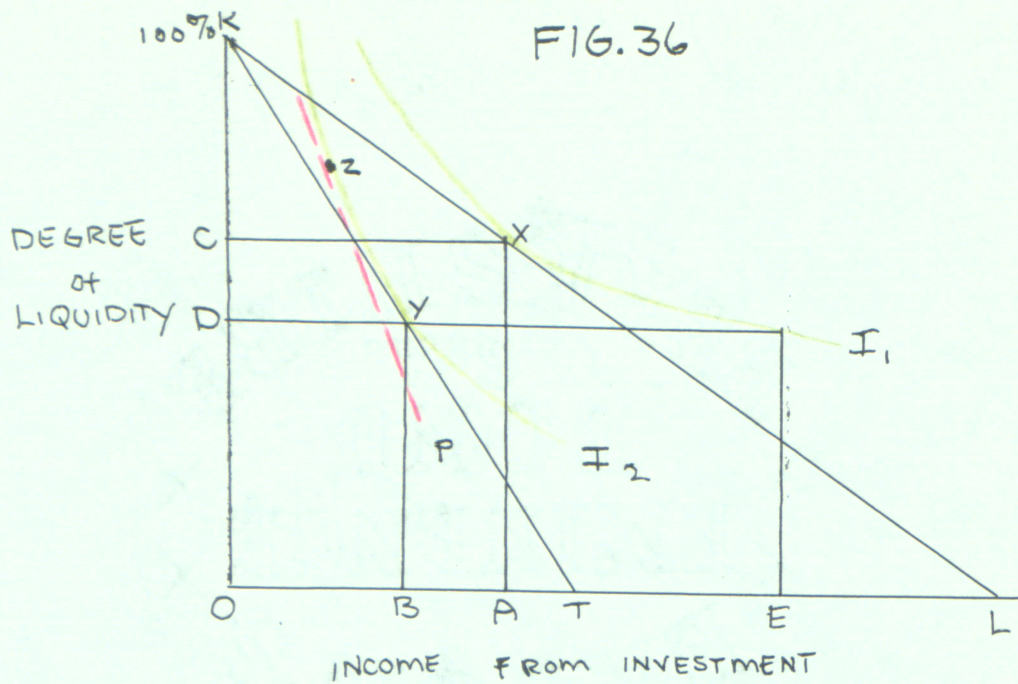
4. Von Mering, op. cit., p. 196.

the possibility of ultimate non-recoupment of principle and uncertain yield.

It will be assumed that the individual can control the liquidity of his holdings. This may be accomplished by varying the proportion of cash in the portfolio, by altering the distribution of maturities, or by moving from securities displaying less stable price patterns to those which are more consistent or visa versa.

In Figure 36 the non-monetary variable, degree of liquidity, is measured along the Y axis, and the income from investment along X. The point K designates the situation where the individual's entire capital is held in the form of cash, i.e., 100% liquid, and hence no investment income is earned. If the payment for assuming an illiquid position is fixed, the point L depicts the amount of income which would be realized by investing all of his resources in the most illiquid manner possible, i.e., 0 liquidity. The line K L indicates the substitution possibilities at various levels of liquidity. By drawing K L as a straight line a simple linear relationship between the degree of illiquidity and the compensation for assuming an illiquid position is assumed. Although this assumption is undoubtedly not precisely valid, since one would expect initial relative increases of return, and then decline, would cause K L to be concave to the origin, no conclusions are

in any way altered and graphic presentation is simplified. Further, it is assumed that combinations of income and liquidity are preferable to an entirely liquid or an all income position. Therefore, the indifference curves, which represent equivalent combinations of liquidity and income, are convex to the origin. In the absence of an income taxation K L will be tangent to I_2 at X, which depicts O C degree of liquidity and O A income from investment. Should a proportional income tax be levied, then the income after tax curve would be K T. K T is tangent to I_2 at Y, which indicates O D liquidity and O B net income. Incidence, in the absence of an alteration of the interest rate is B E. In this case the tax has caused the individual to assume a less liquid position. The extent of the decrease in liquidity may be measured by D C. This is, of course, an instance of the dominance of the income effect once again. Its realism in many cases is beyond question. If an individual relies exclusively or primarily upon the income from an investment portfolio, the imposition of income taxation may well impinge seriously upon his mode of living. As a consequence he may be motivated to decrease the liquidity of his holding in order to restore part of his income. Thus he may decrease his proportionate cash balance and move from short into longer term maturities, and even enter into speculative ventures which are highly illiquid in addition to being risky.



Should this reaction dominate investors, a reduction of the compensation to illiquid investments would ensue with consequent intensification of the incidence. This could be shown by a movement of K L and K T to the left. However, not all investors will be so dependent upon portfolio income or have a post tax investment income so small as to result in the tax jeopardizing their customary mode of life. Their reaction might be expected to follow a materially different course. Figure 37 illustrates the position of an individual who seeks more liquidity as a consequence of the tax. His post tax position of equilibrium at Y indicates an increase in the liquidity of his holdings by C D. The substitution effect, so graphed, shows that the reduced net return causes him to esteem money income relatively less highly and advantages of liquidity more. Should this pattern of behavior prevail the remuneration for the assumption of illiquidity would rise and a shift might occur.

The ultimate result would depend upon which of the two patterns prevailed. The former, income effect, would probably apply to a rather restricted group composed of those relying primarily upon an investment income which barely maintains their standard of living. This would probably be characteristic of lower middle class widows, retired non-wealthy business and professional people, and the juve-

enile beneficiaries of small trusts. Although this group might seem quite substantial, both numerically and in terms of the capital involved, it does not ordinarily include the wealthy who control vast aggregates of capital. Neither does it embrace the average middle class householder who is almost entirely dependent upon wage or salary income, and who views investment return as something of an accessory in his income provision picture. Although some members of this group might be induced by the tax to speculate, this reaction is not likely to be general, since smaller gains from speculation typically result in less speculation if income effect are not present. For both of the latter groups substitution could play so important a role as to dominate the entire market.

It must be noted that if shifting tends to occur by increasing the remuneration for the assumption of substantial illiquidity, a decline in the yield of highly liquid assets might ensue. This would limit the effectiveness of the shifting process. An important effect would be the increase in the disparity between rates of return upon investments of differing liquidity. Should the income effect be controlling and the high illiquidity return fall, a rise in the rates on more highly liquid assets and thus a narrowing of the liquidity differential would be expected.

In both Figures 36 and 37 the dotted line P has been drawn to indicate an equal real burden progressive tax. The tangency of this line with I_2 is in both graphs designated by the letter Z. It will be noted that in both instances Z indicates a more highly liquid position than Y, the tangency point of K T, the proportional tax line, with I_2 . Thus the progressive feature tends to offset the income effect and reinforce the substitution effect, thus increasing the probability of shifting.

Income Taxation and Risk Taking

Having considered the way in which income taxation influences the individual's choice between more and less liquid investment opportunities, its effect upon his willingness to assume risk shall now be analyzed. The term risk is here employed in its conventional usage; namely, danger of loss of all, or part, of principal, and possible non-receipt of an anticipated investment income.

The No Loss Offset Case In order to avoid unnecessary duplication of graphics, let the measurements along the Y axis in Figures 36 and 37 now depict the non-monetary variable, safety of investment, so that O K would represent one hundred percent safety, and O the maximum degree of risk which could be assumed, and let anticipated investment income be measured along X. If interpreted in

this manner, these figures can be employed to illucidate the problem at hand. K L would depict the substitution possibility curve before income taxation at a fixed rate of return for assuming risk, and K T the post tax possibilities were a proportional income tax in effect. Again it must be pointed out that drawing K L as a straight line assumes the existence of a linear relationship between the degree of risk and its compensation. Although this assumption is in all likelihood not entirely valid for the following reasons, it does not alter the nature of the conclusions and simplifies graphic presentation, thus making the analysis more easily understood. In the first place it would be mere coincidence were the individual's estimates of the optimum investment combinations, derived from his appraisal of risk-yield probability distributions, to be linear. Further, as Musgrave and Domar point out,⁵ as the portfolio becomes safer the possibility of forced liquidation under unfavorable circumstances is reduced, because the greater degree of safety would involve a larger proportion of cash or near cash assets. This would cause the curve to become concave to the origin. These same authors would also object to drawing K T on an abso-

5. Musgrave, Richard A., and Domar, Evsey D., "Proportional Income Taxation and Risk Taking", Quarterly Journal of Economics, May, 1944, p. 400.

lute rather than a relative basis.⁶ Notwithstanding these objections the employment of straight line income opportunity lines is felt to be justified as a technique of illucidation in this instance, because the graphics are much more easily interpreted and no differences in conclusion would result.

Figure 36 indicates dominance of the income effect. Here a greater degree of risk would be assumed in order to recoup part of the income loss occasioned by the tax. This phenomenon is by no means uncommon. In recent years there has been a considerable shift in the composition of many portfolios away from more secure issues such as bonds and preferred shares toward higher income but less dependable common stocks. Although the low yields which senior obligations have borne until recently, and a desire to possess holdings capable of partially withstanding inflationary price movements, have beyond question been influential in bringing this about, the role of income taxation has in all probability also been of significance.

⁶. Musgrave and Domar feel that it is the relative alteration in yield between more or less risky investment which is controlling in the individual's mind. They, therefore, develop a concept of "tax sensitiveness", which is a function of risk divided by yield. Art., cit., pp. 404 - 405. Although this position undoubtedly possessed considerable merit it is not altogether certain that relative considerations are dominant. In reality, probably both relative and absolute variation in yield play an important role.

Figure 37 shows the superiority of the substitution effect. Here safer investment outlets are chosen since the yield after tax is not considered adequate to justify the former level of risk bearing. This, of course, would be anticipated where the post tax investment income would be more than sufficient to maintain customary living standards, or where other income sources make adequate provision therefor.

In Figures 36 and 37 the dashed lines P, which designate a progressive tax of equal burden, are tangent to I_2 at higher safety levels than the proportional tax lines. Thus, once again it is evident that the progressive feature offsets the income effect and strengthens substitution. The implications of this are clear. Significant progression would tend to cause shifting in that yields on more speculative ventures would rise due to a diminution of the overall willingness to accept investment of a hazardous type. At the same time movement to safer securities would reduce their yields, thus increasing the differentials between the rates on issues of varying degrees of safety.⁷

One further result of the tax in relation to risk-

7. The above analysis was suggested by Black, op. cit., pp. 216 - 222 and Musgrave and Domar, Art., cit., p. 388 - 409.

bearing must not be overlooked. If the tax reduces the return for assuming risk, and if the individual does not exhibit an income effect, he may, rather than accept the lower return on a more secure portfolio, reduce the amount of his savings and increase his consumption. This special type of substitution effect could be called the consumption effect.

The Loss Offset Case The foregoing analysis assumed that the government participates only in the profits derived from the assumption of risk. As Abba P. Lerner has pointed out this need not necessarily be the case if losses can be offset against other income.⁸ To the extent that losses may be offset the government is sharing the risk of investment in addition to its reward. Under such conditions conclusions considerably at variance with those arrived at under the no offset assumption might be expected.

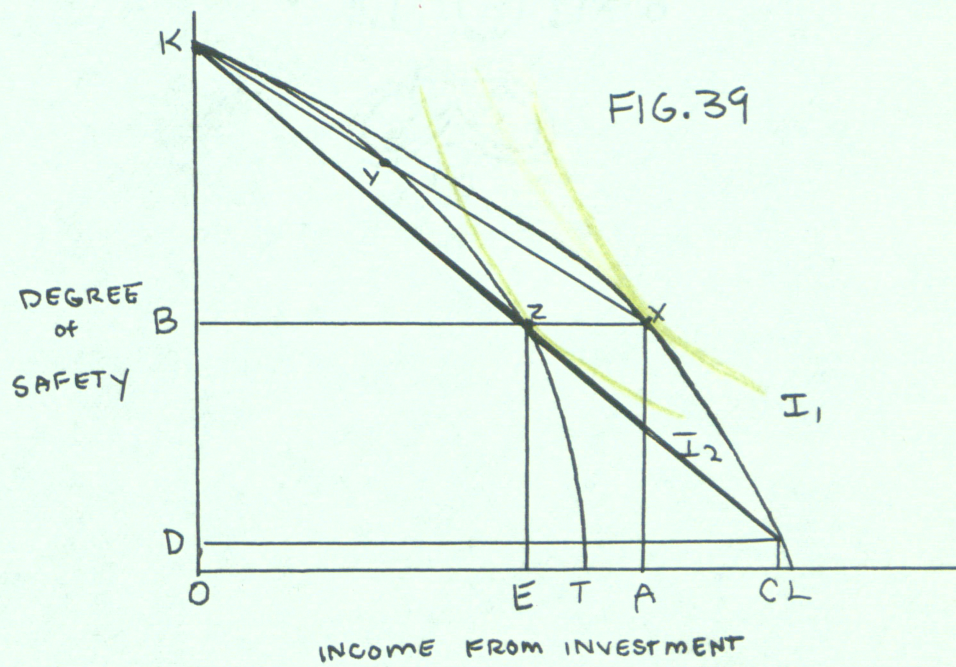
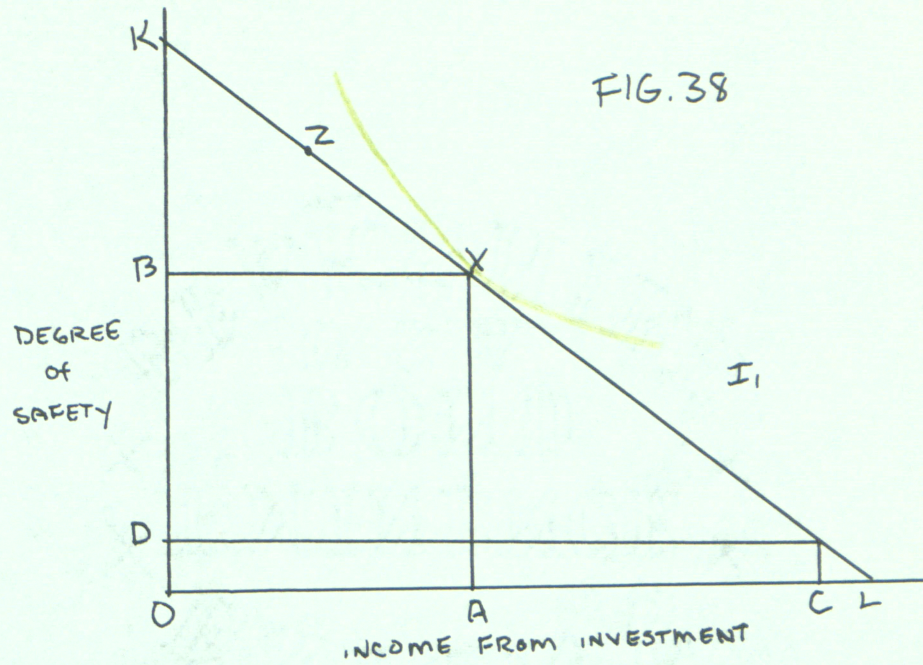
Consideration shall first be given to the limiting case of complete loss offsetting with proportional income taxation.⁹ Under these assumed conditions there could be no substitution effect, since the possibility of complete

8. Lerner, art. cit., pp. 43 - 46.

9. The presentation on this point is largely an adaptation of the argument of Musgrave and Domar, art. cit., pp. 409 - 415.

loss offset reduces risk in exactly the same proportion that anticipated yield is diminished, leaving the rate of remuneration for risk taking unchanged. At the same time, however, income would be reduced leaving the income effect operative, which would entail the assumption of a more speculative portfolio position for purposes of income recoupment.

Figure 38 retains the simplifying assumption of a linear relation between yield and risk, and depicts same by the straight line K L. Should a fifty percent proportional income tax be levied, income possibilities after tax would still be measured along K L since the risk yield relationship is unaltered. Before the imposition of the tax, the individual was in equilibrium at X which depicted O A income, O B safety, and K B degree of risk. After the imposition of the tax the individual will find not only his net return but also the degree of risk halved. This position is designated by the point Z which is necessarily located on K L. The individual and the government now divided both the risk and its remuneration. The point Z, however, is not tangent to an indifference curve, since K L is tangent to I_1 at X. Therefore, to restore income he will increase the venturesomeness of his holding until his net tax position is once again described by X. He will now expect to receive O C income, A C of which will



be sustained by the government. His net position will be identical with the pre-tax equilibrium. He will bear no incidence as long as rates of risk renumeration remain unaltered. Should such a condition be general, however, K L could be expected to pivot to the left and reinforcing incidence would ensue.

Since the lineal income possibility line was employed only as a simplification, and since it possesses distinct shortcomings, at this juncture the more probable income function will be depicted in Figure 39. The income after tax curve K T is so drawn that it describes the locus of points half way between points on K L and K measured lineally. In other words it depicts our 50% tax with complete loss offset assumption. Y, the point on K T that corresponds to X on K L, is not tangent to an indifference curve. Hence the degree of net risk bearing will be increased to Z, where K T is tangent to I_2 . This indicates O A income net of taxes and the same amount of net risk as in the pre-tax situation, O B. However, total risk will be K D, of which D B is borne by the government, and total income will be O C of which the state collects E C. Here again risk taking is increased substantially. This will always be the case, since Z must lie below Y because the slopes of both K T and I_2 at Y is greater than the

slope of K L and I_1 at X.¹⁰

Should loss offsets be only partial the results would fall somewhere between the two limiting cases just presented. The following summary conclusions can be presented. With no loss offset either the income or substitution may dominate with a presumption in favor of the latter. When offsets are incorporated into the tax structure the probability of income effect superiority and the consequent increase in risk bearing increases as the proportion of offsets increases, becoming a certainty when complete offset is permitted.

If total offsets were possible, and if the offsets were allowed at the same tax rate to which yield would be subjected, the same pattern of conclusions, with the exception of a stronger initial presumption in favor of the substitution effect, could be expected with a progressive tax. Irregularity and inadequacy of period income make offsetting less effective with any type of income tax, but particularly so with a progressive tax, unless some elaborate mechanical deduction formula were devised, under a progressive system, offsets would be allowed against income taxed at a lower rate. Thus the magnitude of offsets must be greater if the same results are to obtain with the latter type of

10. For a formal geometric proof of this point see Musgrave and Domar, art. cit., footnote 9, p. 412.

tax. Proposal for income averaging for tax assessment purposes would, of course, go a long way towards overcoming these difficulties under both a proportional and especially a progressive system. However, it is clear that progression is more conducive to reduced risk taking and requires more counteracting devices than proportional taxation.

Conclusion

In this chapter the effect of income taxation upon the supply of capital was analyzed. If saving is considered a function of income, the tax necessarily reduces saving because it reduces income. When saving is viewed as a function of interest, the supply may either increase or decrease, with a strong presumption in favor of the latter, especially with progressive rates. The tax may either increase or reduce the proportion of funds made available for investment in more illiquid lines. Again the presumption against risk bearing is strengthened if the tax is progressive. The same conclusion is reached in the risk bearing case if loss offsets, which were seen to increase the willingness to assume risk, are not available. It is apparent from what has been said that the currently popular type of income tax, which embodies steep progression, exemptions, and only partial loss offsets, and which bears primarily upon those who rely on other

than investment income sources, operates to reduce the supply of capital and thereby encourages shifting. Further it tends to alter its composition in the direction of liquidity and safety. All this results from its discrimination in favor of non-monetary and timing elements of total net want satisfaction.

Chapter VI

INCOME TAXATION AND THE SUPPLY OF LAND

The term land is customarily used to categorize those productive resources which are supplied by nature. Consequently, it includes sub-surface minerals, qualitative soil characteristics, wild life, timber stands not developed by man, useful marine products, and many other gifts of nature, in addition to surface area. In analyzing the influence of income taxation upon the supply of these agents three cases will be distinguished; first, the case of fixed supply, second, the case where supply must be maintained by capital replacement, and third, where supply is subject to depletion and exhaustion.

Fixed Supply - The Rent Case

The supplies of some natural resources are fixed. Therefore, no variation in the activity of their owners can bring about a change in their amounts. As a consequence no possibility of shifting through varying supply exists. The tax falls upon pure rent and is unshiftable. One minor exception to the conclusion can be mentioned. By turning part of his land to untaxed income sources such as gardening for home use or employing it for personal recreation, as opposed to offering it or its products on

the market, some slight diminution of market supply could result. Quantitatively this exception is not important.

Supply Requiring Maintenance

To maintain the quality of some land agents capital must be applied. For example, continued soil fertility often requires expenditures upon chemical fertilizers, or the prevention of erosion may necessitate the construction of walls or dams. However, such cases really involve two elements; land fixed in supply, and capital investment. These two elements are best treated separately. Therefore, the influence of the income tax would be analyzed first as a tax upon land fixed in supply. There can be no shift of the element as seen above. The analysis in regard to the capital would follow the lines of Chapter V.

Exhaustible Resources Some resources are exhaustible. Frequently their owners can control the rate of depletion. Therefore timing factors may be influenced by income taxation.

A proportional income tax, if it is assumed that it will continue, and if rates are not expected to change, should have no effect on timing resource utilization. If an exhaustible resource is used this year or next, the tax which will have to be paid will be the same. The time dis-

count factor favoring present use will be the same as if no tax were levied. Although there is a possibility of an income effect pressuring toward current use, this should be offset by the certainty of loss of future income, and hence an even more severe future income effect. However, the loss of income, both present and prospective, occasioned by the tax may lead to more economical resource exploitation. Thus reduced net income might induce the owners of oil wells to capture and sell their natural gas rather than burning it off.

Should the income tax be regressive, entire different results should ensue. It would then be to the advantage of the resource owner to concentrate as much exploitation as possible in the current year, or years immediately following, both because of the lower increment rates and the consequent highly favorable time discount factor. Thus the current supply of the resource would be enhanced at the expense of the future. In addition the rush to current utilization would militate against economical realization of all of the physical potential which the resource might possess.

A progressive tax, on the other hand, would work in the opposite direction. Excessive current exploitation would encounter successively higher increment rates thus leaving progressively smaller net yields. Consequently

the resource owner would be encouraged to distribute his plan of resource utilization over more tax periods. This would usually tend to create a more rational balance of supply between the present and the future. It is possible that the period of exploitation might be over-extended, but considering our history of resource conservation this would seem unlikely. The extension of the utilization period along with the pressure of the tax upon income should be conducive to more efficient and economical exploitation techniques than could be expected with either proportional or regressive levies.

In reality, not only existing tax types and rate structures, but also, and even more important, frequently anticipated tax changes are of central significance. The consequence of expected future tax reductions approximate the results postulated with a progressive levy which is expected to continue unaltered. Anticipated higher rates would work in the same manner as regression.¹

1. The above analysis was suggested by the elaborate presentation of S. V. Ciriacy-Wantrup in his article "Taxation and the Conservation of Resources", Quarterly Journal of Economics, Nov., 1943.

Chapter VII

BUSINESS INCOME TAXATION

The Traditional Theory

For many years economists believed that general business income taxes were unshiftable.¹ This resulted from an unfortunate confusion of profit concepts, since they implicitly assumed that the accounting concept of net profit, which usually constitutes the tax base, was coincident with what economists meant by profit.² Although recent contributions in the field have rendered this theory untenable, a review of its content and shortcomings will lend understanding to the newer approach.

Black summarizes the arguments of the traditional theory as follows:

- "1. An income tax which has been imposed leaves each producer still a producer in the industry in which he had been to begin with.
2. The number of firms in each industry remains constant.

1. They did, however, recognize that an income tax levied on one or a few industries could be shifted.
2. The reality of this confusion is still evident in tax terminology. A wartime tax on accounting net income over some base amount (historical income in "normal years" or a "normal", 6%, return on invested capital) is not referred to as a profits tax, but as an excess profits tax.

3. Each firm places the same quantity of goods on the market as it had done to begin with".³

The reasoning underlying these arguments is quite simple. Since the tax falls only upon the difference between cost and receipts, only this differential is narrowed and price equilibrium points remain unchanged. Hence a firm which is operating profitably continues to earn profits of which it keeps only a part. Firms which earn no profit pay no tax. Therefore no inter-industry reallocation of resources transpires and no retirement from business is to be anticipated. Unless rates are confiscatory (100% or over) the tax takes away only a part of the profit on increments of production and does not bear upon the marginal, or no profit unit, the amount produced by each firm remains unchanged.

Two assumptions are necessary to these conclusions. In the first place, when advocates of this position such as Seligman contend that "The tax on profits is paid only by the man who makes profits",⁴ they directly assume that business income taxation levies upon profits and only profits, not upon costs of production. Second, they assume that the business enterprises will always attempt to maximize profits, which is the same as assuming that the

3. Black, op. cit., p. 5.

4. Seligman, Studies in Public Finance, p. 59.

supply of the agent business enterprise is perfectly elastic.⁵ Both of these assumptions are subject to serious question. Through an analysis of their shortcomings we shall develop our presentation of the incidence and effects of business income taxation.

COST OF PRODUCTION AS A TAX BASE

It was not until 1927 that it was clearly demonstrated that, from the point of view of the tax statutes, the no profit firm and Marshall's price determining "representative firm" were not identical. Robertson in his landmark article pointed out that the traditional viewpoints, which supposedly predicated its reasoning on Marshallian price doctrine, had gone far wide of the mark in assuming this identity.⁶ He demonstrated that elements of cost included in Marshall's definition of the price determining firm, such as interest, and insurance on all capital, and gross earnings of management, were ignored when computing taxable profit.

The foregoing analysis clearly demonstrates that it is essential that a careful distinction between the concept

5. To my knowledge this point was first made by Boulding, "The Incidence of a Profits Tax", American Economic Review, Sept., 1944, p. 564.

6. Robertson, D. H. "The Colwyn Committee, The Income Tax and the Price Level", Economic Journal, Dec. 1927.

of profit usually employed by the tax collector and that which is customary in economic literature be made. Most business tax statutes define taxable net income as a form of accounting net income. It is typically the difference between revenues resulting from the sale of products, services, or properties, and the cash outlays, either proximate or remote, involved in earning these revenues.⁷ In essence accounting income deals with the differential between flows to the business from outside parties, on the one hand, and from the business to outside parties on the other. No income to owner-supplied agents is imputed into the accounting of total cost, hence such income appears as part of the net income or profit of the business.

The concept of cost employed by economists in determining profit is much broader. Since it involves the remuneration of all agents required in bringing forth the product, it is by no means restricted to external payments. Payments to owner-supplied agents are imputed at the opportunity cost value of their services. It is self-evident that substantial differences must result between the conceptual content and quantitative amount of these two profit concepts; the tax collector considers as profit some of the elements which the economist deems to be cost. Because of

7. Such long term non-current cash charges such as depreciation are really an allocation of cash cost over the life of the assets in question.

these differences, the reasoning of the traditional school loses much of its force. Only what is now called a profits, or excess profits, tax could be analyzed along traditional lines without danger of serious error.

Taxation Falling Upon the Costs of Unincorporated Business

For tax purposes the income of unincorporated business is treated as the personal income of the owner or owners. The profit of a proprietorship is part of the personal income of the proprietor, and partnership income is allocated as personal income among the several partners. In this case failure to impute remuneration on owner-supplied agents as business costs makes no real difference. Although such income is taxed as part of business profit, if it were imputed as cost to the business then it would necessarily also be imputed as other personal income to the owner leaving the tax liability unchanged.⁸ Further, no discrimination against use of personally owned resources in business exists since were these same resources employed elsewhere the income earned would be taxed in an identical manner. It is quite true that the existence of the tax may alter the willingness of the owner of productive agents to allow them to enter the productive process. These possibilities

8. This statement would not be valid if income from differing sources received differing tax treatment, but such is not the case under the American tax system except in the case of capital gains.

of the tax producing income or substitution effects, which would alter the amount of the agents supplied, were examined in detail in the preceding chapters. Nevertheless, if earnings are the same, such alterations will occur without regard to whether these agents are employed in his own business or elsewhere. Such phenomena are the result of the tax bearing upon individual income in general, not business income in particular. Thus the traditional viewpoint is not invalidated in this case by the tax falling upon cost, as long as the whole problem is viewed in terms of the post-tax situation.⁹ Therefore, shifting by unincorporated business, as an enterprise unit, must be evaluated in terms of the impact of the tax on economic profit. Discussion of this point will be deferred until a later section of the chapter.

The Corporation Income Tax as a Tax on Cost

American law taxes corporations as entities in themselves and does not integrate this tax with the tax upon individual income. For this reason a separate level of policy formation exists, and reactions to the tax occur on this level as well as the individual level. Thus corporate policies may be altered because of the tax by shift-

9. The post tax situation, because of altered responses of the owners of the agents, will in all probability involve changes in both cost and demand. This point Black makes most emphatically, op. cit., p. 16.

ting the disposition and utilization of existing resources, treatment of present or potential share-holders, and shifts in corporate investments. These possibilities shall be examined both in terms of shifting and incidence analysis, and in terms of important effects.

Although a dissenting voice is sometimes heard,¹⁰ the weight of opinion, expressed in recent presentations, points to the tax including cost of production elements in its base, thus creating the possibility of shifting. There is substantial agreement that the tax impinges upon fixed cost elements. Richard Goode, in his impressive followup of Robertson, enumerates non-contractual interest, imputed rent, and uninsurable risk as of primary importance in this respect.¹¹ The validity of this position is readily apparent. Take non-contractual interest as an example. If a corporation is to obtain funds from equity sources, it must offer a return comparable to what can be obtained in other investment channels of similar risk. If this rate is assumed to be 5% then, the corporation must hold forth the prospect in the short run, and must make good in the long run, of payment of this amount net of corporate income

10. For example, Macy, C. Ward, "The Corporate Net Income Tax and the Post Price Structure", Bulletin of the National Tax Association, May, 1944, and "Incidence or effects of the Corporation Income Tax", American Economic Review, Dec. 1946.

11. Goode, Richard, "The Corporate Income Tax and the Price Level", American Economic Review, March, 1945.

Figure 40 *

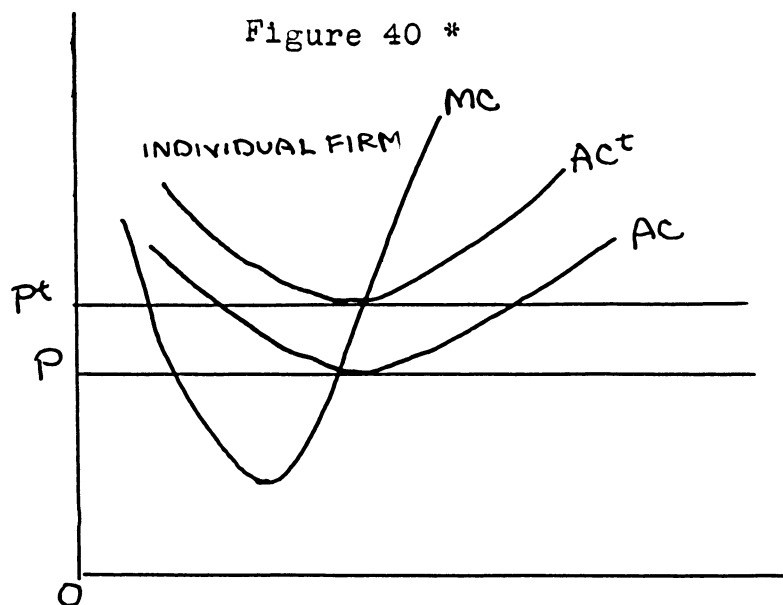
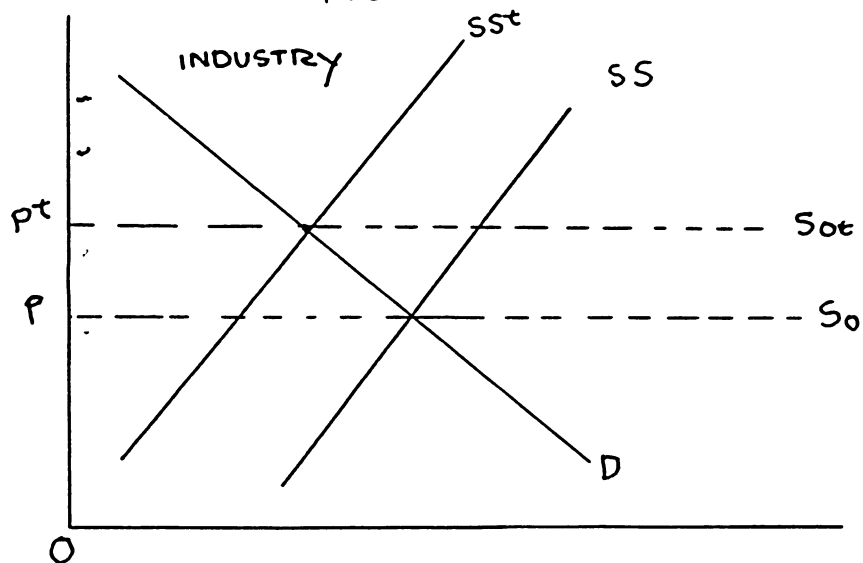


FIGURE 41



* This construction is employed by Weston to illustrate the point at issue, Weston, J. Fred. "The Incidence and Effects of the Corporation Income Tax", National Tax Journal, Dec. 1950.

taxes. Should the effective rate of such taxes be 50%, then the corporation would have to earn 10% gross on the additional investment financed from equity sources. If in the long run it should fail to do so, the supply of available equity capital would diminish, and if new sources were not found, shifting via a reduction in the supply of capital would occur.

Figures 40 and 41 depict an increase in fixed costs, occasioned by the tax, being shifted in the long run in an industry operating under conditions of perfect competition with long run constant costs. The increase in fixed cost is depicted on the individual firm graph by a rise in average cost from $A C$ to $A C^t$, and on the industry graph by the movement from S_o to S_o^t . Since only fixed costs are involved in this example, no short run adjustment takes place. However, the remuneration to invested capital is now inadequate and eventually resources will be withdrawn. Hence the short run schedule (SS) will move to the left until it ultimately assumes the position SS^t where the necessary rate of net return is realized. In the process price has risen from P to P^t thus shifting the entire burden of the tax (as far as it falls upon cost) forward onto the consumer. The same line of reasoning could be applied to market conditions other than perfect competition to the extent durable specific factors (factors which cannot be

transferred to other uses) are not involved.

The foregoing presentation implicitly assumed the supply of the agents of production to be perfectly elastic. Were this not the case, which is most likely, then some backward shifting would occur, and the degree of forward shifting would be lessened. Nevertheless the extent of overall shifting would remain unchanged.

The above analysis rests on the assumption that there are some uses of funds which will be free of the corporate tax burden. A universal tax, falling equally upon the income from all forms of investment (and also on the satisfaction of liquidity preference in the case of hoarding) would render this assumption invalid. Obviously under current law these alternatives for investment are quite numerous. Funds could be held idle, thus satisfying liquidity preference, or consumed thereby placating time preference. Although there are limitations as to how far this could go, some movement in this direction is quite possible. Investment channels not subject to corporate income taxation could be chosen. Among these, unincorporated business investment, private bonds and public debt are of importance. With the exception of private bonds there are serious obstacles that would impede the use of these alternative channels to replace the funds withdrawn on account of the tax. Typically unincorporated business and government are not adapted to the type of operation carried on by business

corporations. The alternate source of funds from private bonds would be at best partial, since many industries possess characteristics which make heavy funded debt not only undesirable, but outright dangerous both from the point of view of the corporation and the investor.¹² Therefore, shifting can be expected.

The same line of reasoning employed in an analysis of contractual interest could be applied to imputed rents and uninsurable risks, the other fixed cost elements upon which Goode feels the tax burden falls. Land and other fixed properties would tend to be withdrawn from the corporate ownership in the imputed rent case. This move could be partially offset by the supplying of these same agents to corporations on a lease basis, but we have no grounds for assuming that the offset would be complete, since not all fixed assets are of such a nature, either physically or financially, as to be conveniently subject to lease. Nevertheless the growing importance of the "sale and lease-back" arrangements in recent years testifies to the change from ownership to lease of fixed assets by corporation for tax reasons.

To the extent that the tax bears upon uninsurable

12. The replacement of agents withdrawn on account of the tax by agents from other sources could be called an "offset" to shifting.

risks the supply of venture capital would be reduced,¹³ which would lead to shifting in areas where this type of investment plays an important role. Bowen feels that for this reason the entire supply of capital will be reduced, which would cause a backward shift onto the suppliers of labor and land.¹⁴

As mentioned above, the consensus of opinion points to the tax bearing upon exclusively fixed costs and thus inducing long run shifting only. Nevertheless, careful examination of the problem will reveal that possibilities of short run are by no means absent. In the first place some variable cost factors may feel the weight of the tax. As Somers Points out, expansion of production within fixed plant capacity is undertaken in anticipation of demand in most instances. Thus, an element of uncertainty and therefore risk, usually of the uninsurable type, is introduced in the short run. Since the tax imposes a burden upon this risk bearing, short run shifting becomes possible.¹⁵ In addition, it is worth pointing out that the working capital required varies with output within fixed

13. As will be demonstrated subsequently the type of enterprise undertaking venturesome investment will also tend to differ because of the tax.

14. Bowen, Howard R., "The Incidence of the Corporation Income Tax, A Reply", American Economic Review, March, 1946.

16. Somers, op. cit., p. 215.

plants. Thus with larger volume more funds are necessarily invested in inventories, supplies and receivables than at lower levels of output. To the extent that this working capital investment is equity-supplied, the issue of non-contractual interest appears in the short run as well as the long run. Although part of working capital requirements are typically financed from short-term debt sources (accounts payable, tax liabilities, accruals and short term borrowing), prudent financial management usually requires the maintenance of a satisfactory current ratio (current assets divided by current liabilities). Unless the current position is sufficiently strong prior to short-term expansion, additional equity capital, usually from retained earnings, is required in order to sustain a satisfactory current ratio. Thus in many instances short-run shifting is possible for this reason, because less will be invested in working capital. This would reduce both the demand for the agents and the supply of the product.

Still another impetus to short-run shifting may frequently present itself. Many producers in monopolistically competitive industries may not be fully exploiting the profit possibilities of their situation. They may be satisfied to accept a "reasonable" rather than a maximum profit level.¹⁶ Shoup points out that the impact of the

16. This point has been made by Slitor. Slitor, Richard E., "The Corporation Income Tax, A Revaluation", National Tax Journal, Dec. 1952.

tax may cause these producers to immediately raise their prices to recoup tax losses for two reasons. In the first place, they feel justified in so doing, and in the second, they usually need not fear competitive reprisals because other members of the industry are reacting in an identical manner.¹⁷

Thus it is reasonable to conclude that since the corporation income tax bears upon cost factors not only in the long run but also during the short run period, both short and long run shifting will occur in some degree. This shifting will be both forward and backward, the relative distribution between the two directions of shifting being determined by the relative elasticities of the demand for product and the supplies of things purchased by the corporations. Inelasticity of demand will make forward shifting more probable, while inelasticity of supply will induce a preponderance of backward shifting.

Intra-Corporate Factors and the Extent of Shifting

Assuming that the corporation income tax bears upon cost elements, and that a corporation is able to shift (in either the short run, long run, or both), we may now in-

17. Shoup, Carl, "The Incidence of the Corporation Income Tax", National Tax Journal, March, 1948.

quire into the amount by which the corporation must increase its selling prices or reduce its buying prices in order to relieve itself of this tax burden. Shoup has established that this amount will vary depending upon intra-corporate factors such as capital structure and capital turnover.¹⁸ Beck following Shoup's lead has demonstrated that these factors are capable of statistical evaluation and has computed indices of the shifting capabilities of seven industries in 1939.¹⁹ The argument will be examined first in regard to capital structure, then in relation to capital turnover.

Capital Structure The capital structure of a corporation refers to the composition of its sources of invested capital. The corporation income tax levies only upon the income earned by equity (stock) portion of this structure. Therefore, the larger the proportion of equity capital the greater the amount of tax burden which the corporation will need to shift, and hence the greater the price increase (or buying price reduction) necessary to accomplish complete burden shifting. Greater proportions of debt financing, on the other hand, reduce the tax burden and the necessary

18. Shoup, art., cit.

19. Beck, Morris, "The Ability to Shift the Corporate Income Tax", National Tax Journal, June, 1950.

price increases. It follows that the degree of shifting sought by the corporation varies directly with the proportion of equity financing and inversely with the proportion of debt.

If cumulative preferred stock is included in the capital structure the amount of shifting is increased because the effective rate of taxation upon common shareholders rises. This necessarily follows from the requirement that preferred dividend must be met before any distribution is made to common, and therefore both tax and preferred dividend constitute a burden to the common equity. For example, if 5% cumulative preferred is outstanding and the tax is 50%, then 10% (5% for the dividend and 5% for tax) must be earned on the preferred portion of the equity.

Capital Turnover The equity capital turnover of a corporation is the average rate at which the investment flows through the sales process. It is measured by dividing net worth into net sales. Should this ratio be high, smaller price increases would be required to shift a given burden on equity capital than if the ratio were low. For example, with a 50% corporation income tax and a 5% opportunity cost on equity capital, a 5% increase in return before taxes would be required in order to shift the tax. Should the annual capital turnover be one (net worth equals net sales) then a 5% increase in price would be required. If, however,

the turnover were five then a one percent price increase would suffice. Thus the price increases will vary inversely with the rate of capital turnover.

Effects of the Corporation Income Tax as Tax on Cost

Debt versus Equity Financing As has been pointed out above the corporation income tax bears only upon that portion of the investment which is owner-supplied. As a consequence, debt or other forms of contractual payment, financing techniques are available to offset the withdrawal of equity capital which the tax occasions. Increasing utilization of bonds, term loans, and lease arrangements indicate that these channels of tax avoidance have not been overlooked.²⁰ Were the significance of such alterations in the nature of the sources of long term funds merely technical or legal, it would not concern us further. However, the change has far-reaching economic implications. Whereas the payment of non-contractual interest is contingent or discretionary, contractual payments are mandatory. Failure to meet the latter constitutes legal insolvency and will frequently lead to bankruptcy action which may result in the liquidation of the enterprise. The importance of this is

20. Goode, who recognizes the objectionable nature of this trend, however, does not feel that the movement toward bonds thus far has been spectacular Goode, Richard, The Corporation Income Tax, p. 137.

twofold. In times of contracting overall demand a wave of failures, which could result from excessive fixed charges, would exert a powerful destabilizing influence. In addition the existence of fixed charges considerably alters the attitude of management. This change in outlook may manifest itself in a decline in the willingness to assume risk, or by attempts through monopolistic action to stabilize the condition of the industry.

Sources of Venture Capital Another tendency toward monopoly generated by the corporation income tax is found in its influence upon risk bearing. It has already been seen that the tax tends to reduce the willingness to assume risk thereby reducing the supply of so-called venture capital. But it also alters the location in which this type of investment will be found. As was noted in the preceding chapter, the retarding influence of income taxation upon the assumption of risk is diminished by the possibility of losses being offset against other income. When inquiry is directed to the possibilities of loss offsets in the case of firms of differing size the conclusion is unavoidable that it will be greatest with the large and successful business unit.²¹ Therefore, venture capital will tend to

21. Cf. Goode, op. cit., p. 123.

be supplied more through those units which have already achieved a position of dominance than by smaller and weaker competitors. Such a situation is obviously conducive to cumulative concentration and monopolization of industry.²² It is interesting to note that proposals advocating lower rates on venture capital,²³ which have been advanced in recent years, would not only tend to augment its supply, but would also strengthen the competitive structure of the economy.

Sources of Savings The reduction in the return to equity capital occasioned by the tax alters the distribution of sources of savings in the community and especially those available to corporations. Since many firms cannot offer a rate of return net of taxes adequate to attract new equity capital, and since management frequently is unwilling to go beyond certain limits in the assumption of contractual payments (debt or lease), the only available source of additional funds is retained earnings at the expense of dividend payments. Another reason for reinvested earnings is to avoid high personal income taxes, and, since no tax on capital gains is levied at death, permanent exemption is obtained. Although these savings might be

22. Musgrave and Domar make this point in their article on risk bearing.

23. For example, Hansen, Alvin, Financing American Property.

imputed to the stockholder, in most instances where large corporations are involved the decision to save was forced upon him, not a free and voluntary choice. It is, therefore, more realistic to consider these savings as the savings of the corporation, and the corporation as the saving unit.²⁴

The reality of this analysis is apparent when it can be observed that the stock market value of industrial capacity is frequently only a small fraction of its cost of reproduction. This causes stock financing to be undesirable since a tremendous dilution of existing book value equities would result from tapping this source of funds to any considerable extent, and stockholders usually react adversely to such dilution. That retained earnings have been resorted to as an alternative is obvious in the light of recent experience. Since the end of World War II this has been the major source of funds for new corporate investment.²⁵

24. It is interesting to note that the accountant of national income take this view when they subtract among other things corporate savings from national income in deriving Personal Income, Survey of Current Business Supplement, 1946.

25. Not only tax rates, but also the requirement that depreciation be calculated on the basis of historical rather than reproduction cost for tax deduction purposes have been influential in producing this result.

This trend toward self-financing, and thus the altered source of savings, contains important self-reinforcing elements. Not only earnings (net of taxes) but also yield, both current and prospective, enters into the determination of the market values of shares. If small dividends resulting from corporate savings are expected to be but temporary, then price will not suffer seriously since future periods of high yield are anticipated. On the other hand, if reasonable expectations point to persistent low dividends and high corporate savings then market values are bound to suffer. This would only enhance the necessity of relying on retained earnings for needed equity capital.²⁶

The Form of Enterprise The corporation is taxed as such, while the partnership cooperative, and proprietorship, are not. Hence we would expect a tendency toward unincorporated business to result. Undoubtedly this has occurred, especially among smaller business units, not so much by the dissolution of existing corporations as through the retention of an unincorporated form by firms which otherwise would have sought the shelter of limited liability. The tendency is progressively restricted for the proprietorship

26. It is enlightening to reflect upon the substantial advance in the value of General Motors' shares when the proportion of earnings distributed in dividends was materially increased after the completion of that company's post war expansion program.

and partnership when larger business units are considered.²⁷ However, cooperatives have shown considerable capacity for engaging in large scale enterprise. Their success and vigor in doing so has led to the charge that they are in reality tax free corporations.

The interrelating action of the corporate and personal taxes has led to some movement in the opposite direction. Impelled by a desire to avoid high progressive rates on income which is received at irregular intervals or by the advantage of less heavily taxed saving within the corporation, some individuals, who otherwise would shun corporate identity, have been led to seek the immunity from the progression of the individual tax which it confers.²⁸ It is not surprising, as Litterer points out, that this may lead to an accumulation of idle funds in the corporate structure.²⁹

The Taxation of Pure Profits

Business income taxation, in addition to bearing upon cost elements, reduces the amount of pure profits. The

27. Goode envisions the possibility of a trend away from capital intensive industries, where the corporate form of business is especially advantageous, to small scale or labor intensive industries, op. cit., p. 140.

28. For example, the Rofell Corp. of ballplayer Bob Feller.

29. Litterer, Oscar F., "The Corporation Income Tax and Production", Bulletin of the National Tax Association, April, 1946.

traditional view, which holds this tax to be unshiftable, does so on the grounds that the business enterpriser will attempt to maximize these pure profits. Let us now consider the validity of this assumption. Pure profits are usually envisioned as arising from two general types of sources; external, which arise because of conditions outside of the individual firm, and, therefore, beyond the control of the business man, and internal, which arise within the firm and are, in part at least, under the control of the enterpriser. Price level changes, increases in the prices of particular commodities occasioned by increases in demand, uncontrollable variations in production, and changes in governmental policy, are cited as examples of the former, while the development of a monopoly position, reduction of production costs through skillful management, innovations, successful bargaining, product differentiation, and financial manipulation, illustrate the latter.³⁰ Obviously there can be little argument over profits from external sources. Since they are beyond the control of the enterpriser, he will accept them to the full regardless of any reduction occasioned by taxation. Hence no direct shifting possibility exists.³¹

30. See Bye, R. T. and Hewett, W. W., The Economic Process, pp. 647 - 651.

31. Some indirect shifting might occur due to the tax reducing the enterpriser's income.

However, a similar conclusion seems tenuous when profits arising from internal sources are considered. It seems quite unlikely that the enterpriser's propensity to reduce cost by skillful management, or to bring forth innovations, or to extend himself in bargaining would remain unaffected if the reward for so doing is reduced. A far more plausible approach would assume some degree of co-variation of enterprennial activity and the profits to be secured therefrom. Again we can reason in terms of monetary reward, on the one hand, and those other elements in the total want satisfaction picture which are not secured with money income, on the other. Unfortunately the problem is not as simple as in the case of the supply of labor considered in the preceding chapter. True, many similarities exist in that enterprennial effort involve disutilities, and, therefore, a balancing of net rewards against leisure does undoubtedly take place. However, an additional element is present. Business is a game which many delight in playing. It is a source of social prestige, of professional respect, and above all in many instances of power. The extent of these critical non-monetary compensations all too frequently varies directly, although not necessarily proportionally, with the scale of the enterprise.³²

32. These non-monetary compensations also vary with the factors such as leisure, age, and health. However, the

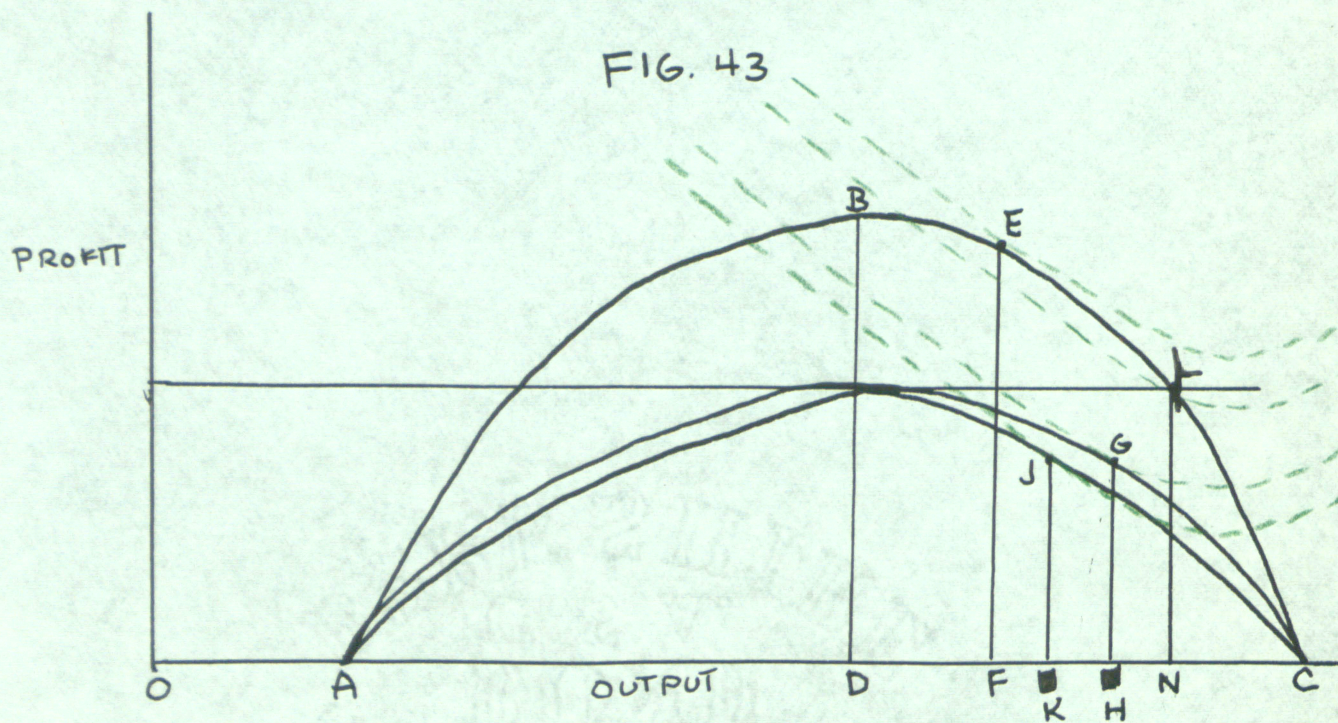
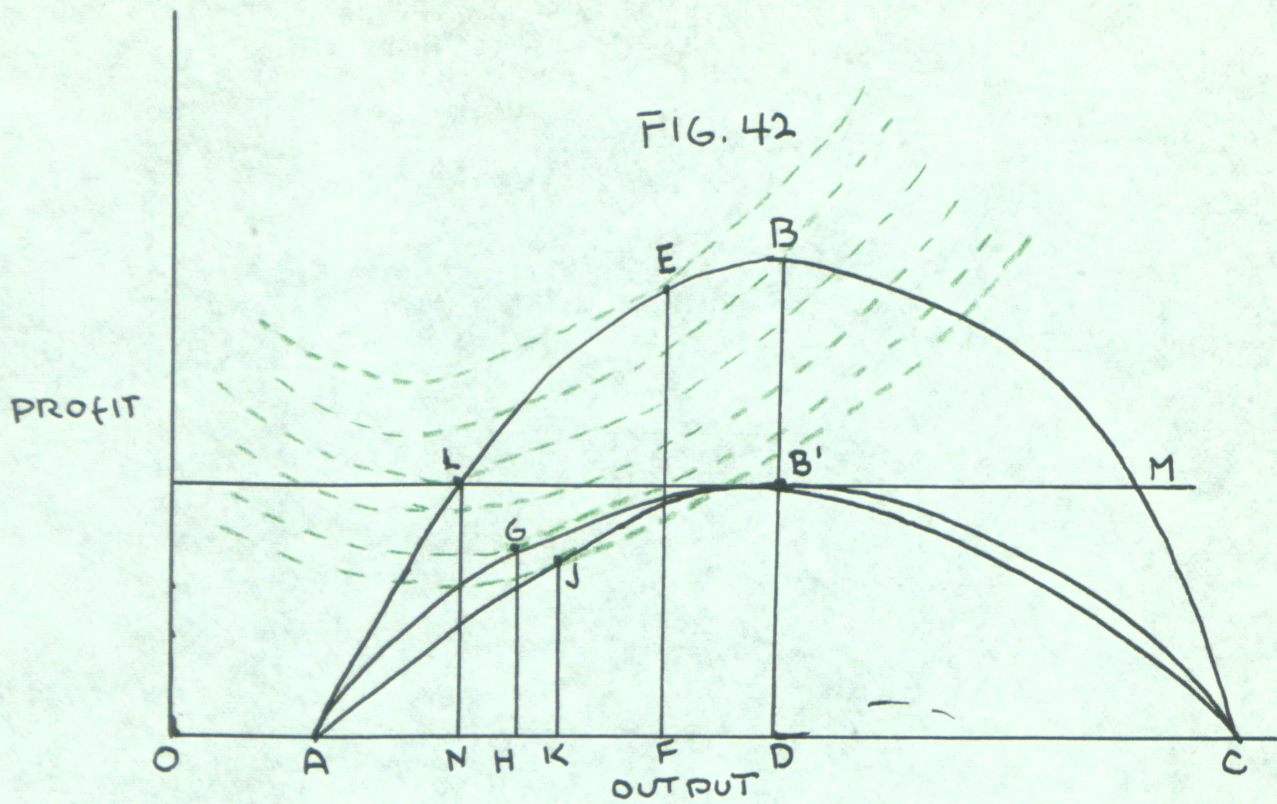
If the type of indifference pattern which the above argument suggests is graphically depicted by measuring profit along the Y axis and output (scale of enterprise) along X (as in Figures 42 and 43), a U shaped system of curves should result. The implications of such a pattern are clear. For a while the business man is willing to sacrifice both leisure and income for the prestige and power which accompany larger scale of enterprise. The falling section of the indifference curves indicate less income with greater scale being the equivalent of more income and smaller scale. Presumably at larger scale also more effort is required and less leisure can be enjoyed. As this goes on, increments of leisure and income will increase in relative importance while the marginal value of additional power and prestige will decline. Eventually the former influence will assume a dominant role and the curves will rise, which would mean that in this phase more income is necessary to compensate the loss of other elements of want satisfaction which larger scale occasions. The scale of enterprise at which this will occur is dependent upon the personal characteristics of the business man himself. If he has wide outside interests, he will not long sacrifice the leisure and income which enable

32. purpose of the present analysis is to relate them to the variable scale of enterprise.

him to exploit them in return for the egoistic gratifications which greater size offers. On the other hand, if business is not only a way of life, but life itself to him, then leisure and income will only loom important when physical well-being is threatened. Thus he may try to achieve a vast, though unprofitable, scale of operation. One offsetting factor to be found in this case is that money profits are to some extent used along with size and power as a measure of success. This is frequently called the money illusion. Hence, the curves for this type of individual might not fall over such a large scale of output as the previous argument might suggest, because loss of prestige occasioned by less money income would counterbalance the prestige to be derived from running a larger business.³³

Figure 42 depicts the case of an enterpriser whose indifference curves are rising over the relevant output range. The curve A B C shows the amount of profit which may be (or is expected to be) realized at a series of outputs. In the absence of taxation of profit the enterpriser will decide on output O F and profit F E, since at E the profit curve A B C is tangent to a higher indifference

33. If business risks are not included in the cost analysis the risk factor will exert an upward pressure on the indifference curves at larger scales of output. Boulding, in his article from which this analysis was adapted, points out that "an expansion of output with exactly the same actuarial value in terms of expected profit will look much more attractive at small outputs than at large", art. cit., p. 571.



curve than at any other point. Note that the level of profit is less than the maximum possible D B. For D B to be the equilibrium point, an indifference curve would have to be horizontal at O D output. This naturally could occur, however, it would merely be a coincidence.³⁴ Should all profits above the level N L be taxed away (no tax applying to N L), then equilibrium would be achieved at L, since no further expansion would be undertaken without added compensation. If a proportional tax were assessed against profits, then the profits net of tax curve would be A J B' C. A J B' C is tangent to an indifference curve at J which indicates K J profit after tax and O K output. If the tax were progressive and intended to return the same yield on maximum possible profits, the profits net of tax curve would be A G B' C, and equilibrium would be realized at G with G H profit and O H output. Thus the progressive tax restricts output more than the proportional level. This result is not unexpected since increments of profit are taxed at successively higher rates, while expansion in this case will not occur unless extra profit accrues. Therefore, the higher progressive increment rates will leave net yields below the amount necessary to induce ex-

34. The traditional assertion that the enterpriser will always attempt to maximize profit rests upon assumption that the indifference pattern will be horizontal throughout. In view of what has been said before such a condition seems most unlikely.

pansion sooner than will the lower proportional rate.

Figure 42 depicts the reaction of an enterpriser whose indifference curves are falling over the relevant range of output which indicates his willingness to sacrifice income for the prestige and power. In the absence of taxation he would be in equilibrium at E, showing that he had sacrificed some income for greater prestige and power. A proportional income tax would leave him at J and a progressive tax at G. Thus both taxes will cause him to increase output. This is reasonable in terms of the postulated pattern of behavior because of the assumption that our enterpriser is willing to sacrifice income for prestige and power. On account of the tax, less net income loss accompanies expansion than before. In effect power and prestige may now be purchased more cheaply than before, and our enterpriser elects to make the purchase. The progressive tax encourages more expansion for the same type of reason. As profits decline due to expansion, the successive decreases in taxation begin with the highest increment rates, hence over the relevant range power and prestige are cheaper with the progressive tax.

Any conclusions regarding shifting of the profits tax depend upon which type of behavior pattern which predominates. Should Figure 39 depict the more frequent case then shifting would occur, and part of the incidence of

the tax would be borne by users of the product or suppliers of the agents, and society would lose. On the other hand, the type of response described by Figure 42 would confer a benefit upon the community, and reinforce the incidence upon the enterpriser.³⁵

Although undoubtedly both behavior patterns do exist there is a strong presumption in favor of the former (less enterprise accompanying less after-tax profit). The general environment in which we live has changed considerably in the past few generations. Social eminence and influence may be achieved in many more ways than formerly. Where fifty years ago business constituted the appropriate outlet for desires in this direction, today many alternative channels are open. Rather than expanding his operation, a business man may gain the acclaim of his fellow citizens by participation in community welfare or cultural projects.³⁶ With the great rise of governmental power and scope, politics offers many more avenues to prestige and authority than in the past.³⁷ At the same time the importance of the power and prestige motives has probably

35. In mentioning social loss or benefit in this connection reference is made to productivity. Should monopolistic practices enter in other conclusions could well be reached.

36. Examination of the leadership lists in such things as the annual Red Cross, Red Feather, or Symphony Drives attest to this point.

37. The willing participation of the executives of giant

declined. With the advance of our material welfare many more approaches to self-gratification are available. Where the industrial empire builder of the last century was conditioned through his formative years to a simple and hard way of life,³⁸ the leaders of today and tomorrow have learned to enjoy more and different things, and require more leisure time for this enjoyment. Thus the entire tone seems to have been changing from business for its own sake to business for the other gratifications which its profits make possible; the venturesomeness of the pioneer seems to be yielding to the conservatism of a mature economy.

No conclusive answer can be given to the complicated set of motives which have been examined. However, on the balance it seems reasonable to conclude that the taxation of pure profits will generally contribute to a reduction in the supply of enterprise. The factors mentioned above, which cause the indifference curves to positively incline are also militating in this direction. Their combined influences have produced two significant results. In the

37. corporations in the government during recent years point to the reality of this contention. For example, Donald Nelson, Charles Wilson (G.E.) and Charles Wilson (G. M.).

38. Henry Ford, Walter Chrysler, and R. K. LeBlond are good examples.

first place the number of enterprise units has declined. At the same time the vat multiple enterprise organization has gained wide usage. That the supply of enterprise has contracted, and at the same time become concentrated does not portend well for the future prosperity and freedom of the economy.

CONCLUSIONS

Business income taxation has been evaluated from two points of view, as a tax on cost of production, and as a tax on profits. As a tax on cost, no possibilities of shifting were found to exist in the case of unincorporated business, because untaxed or less heavily taxed alternative uses for owner-supplied agents were not available. However, in case of corporations subject to corporation income taxation such alternatives are available, and, therefore, the tax levies on certain cost elements and was considered shiftable. This would mean that part of the incidence would be transferred forward to consumers or backward to the agents of production. It was pointed out that in addition to constituting fixed cost elements, and thus making long run shifting possible, the tax also adds to certain variable costs enabling short run shifting to take place. It was demonstrated that the extent of price changes necessary to effect a shift varies

directly with the proportion of equity capital to total capital and inversely with the ratio of capital turnover.

We noted that by entering into cost the tax produces several important effects. It encourages the use of debt financing at the expense of equity financing, concentrates venture capital into large and secure business units, causes corporate savings to become a more important source of saving in general, and influences the choice of the form of business enterprise. As a result of bearing upon pure profits the taxation of business income probably reduces and concentrates the supply of enterprise, thus leading to shifting and possibly other undesirable consequence.

Chapter VIII

CONCLUSIONS

Review of the Analysis

The conclusion of this study is that income taxes can cause variations in the supply of productive resources and, therefore, are shiftable. This conclusion is at marked variance with the traditional theory that income taxes are taxes upon surplus and not subject to shifting. The error of the traditional theory was found in its implicit assumption that money income, which is subject to tax, is coincident with total net want satisfaction which the individual will attempt to maximize. It was demonstrated that total net want satisfaction embraces in addition to money income and the things it will buy many other important elements. These were classified as (1) non-monetary elements such as leisure, pleasant working conditions, financial flexibility, and safety of invested funds, (2) timing factors, which deal with the distribution of income between present and future periods, and (3) untaxed real income sources, of which the services of the housewife and home garden produce are examples. The analysis indicated that the imposition of a tax upon the money income part of total net want satisfaction could upset the balance between its constituents, thus altering the amount of money income

which the individual would seek. This in turn would cause him to vary the quantities of productive resources which he would supply, and, therefore, create the possibility of shifting. By following through this line of reasoning it was seen that the traditional theory, which rested upon the surplus assumption, was valid only where rigidities in the individual's preference pattern rendered his willingness to supply resources completely inelastic. Hence the traditional theory dealt only with a special case, since the assumption of universal inelasticity of supply would be absurd.

Three types of reaction to the imposition of the tax were identified. The rent case exemplifies the realization of the classical assumption, and consequently no change in the resources supplied. The income effect describes the reaction of those who attempt to restore their money incomes by increasing the resources they supply at the expense of other elements of want satisfaction. This reaction is to be expected where the tax jeopardizes established living standards. The type of reaction which involved the substitution of other elements of want satisfaction for money income was called the substitution effect. It was seen that if substitution effects were more important than income effects in the market for an agent, the supply of that agent would decline and part of the tax would be shifted. Dominance of income effects, on the other hand, was shown to

increase supply and to create the phenomenon of reinforcing incidence. In addition, in the case of the corporation income tax it was demonstrated that the tax constituted a cost and, therefore, created a further basis of shifting.

In analyzing the influence of the tax upon the supply of productive effort two directions of tax-induced variation were apparent. The amount of labor supplied in a given occupation could be changed, and a movement between occupations and into and out of the labor force could take place. Income effect dominance was viewed as a cause of increased willingness to work, of more members of households entering the labor market, and of the choice of more highly paid but less desirable occupations. All of these reactions would cause the incidence of the tax to be reinforced and production to increase. The substitution effect was envisioned as operating in the opposite direction. The desire to work would be reduced, people would drop out of the labor force, and more desirable types of employment, even though less remunerative, would be chosen. Thus the substitution effect would work through these three channels to induce shifting and bring about a decrease in production. Progressive tax rates, since they bear most heavily upon the increment of income, operate to strengthen substitution effects and weaken income effects. It is quite possible

for individuals, who would increase their efforts when subjected to proportional taxation, to reduce the supply of labor which they offer if subjected to progression.

The influence of income taxes upon the supply of capital were analyzed both in terms of overall supply and internal composition. In considering the effects of the tax upon the supply of savings two points of view were taken. Assuming savings to be a function of income, the tax was seen to reduce the supply. When savings were considered a function of interest, the possibilities of both increases and decreases in supply, with a presumption in favor of the latter, were pointed out. When it was viewed as a function of both income and interest, the presumption of a reduction in supply became very strong, especially if rates were progressive. The individual's willingness to take an illiquid position and to assume risk also is influenced by the tax. Income effects would increase this willingness, substitution effects would reduce it. Again progression would strengthen substitution and weaken income effects. Thus the income tax could not only decrease the supply of capital, but also alter its internal composition probably in the direction of safety and liquidity.

Most types of land are not subject to variation in supply. However, in the case of exhaustible resources, whose rate of depletion are subject to control, the tax

can be influential. Here progression, rather than reducing productively, was seen to induce a more evenly balanced and efficient time distribution of resource utilization.

Business income taxation was seen to impinge upon the supply of enterprise; increasing it in some cases but in most instances militating in the opposite direction. In addition it was pointed out that the corporation tax, since it uses non-contractual interest, uninsurable risks, and imputed rents, which are costs of production, as a basis of assessment, can be shifted.

The central theme of the argument may be summarized as follows: Income taxation may cause the supply of the agents of production to change. Income effect dominance in the market for an agent will, if not overwhelmed by steeply progressive rates, bring about an increase in the supply of that agent. This will occasion two significant results. The incidence of the tax not only will remain upon those against whom it is assessed, it will be intensified by their reaction to the tax. Further, since the supply of the agent has increased, production will tend to increase. An increase in production is a most significant effect of taxation. Superiority of the substitution effect, which will be augmented by progressive rates, will cause the supply of the agent to decline. This will cause part of the incidence of the tax to be transferred from the

original taxpayer to those who use his products. In addition it will occasion a tendency toward decreased production, an important and undesirable effect.

Income taxation may cause the allocation of the agents among different types of employment to change. Income effects, again militate in favor of more productive (highly paid) utilization of resources, while substitution operates in the opposite manner. Again income effects lead to reinforced incidence, while substitution effects occasion shifting and transferred incidence.

Importance of the Analysis

The conclusions reached in this study point to the probability of existing income taxes being partially shifted and production curtailed. However, little empirical evidence exists, or could exist, to substantiate this view. American experience with heavy income taxation has been coincident with the violent economic upheavals of severe depression, war, and preparation for war on an even more extensive scale not to mention numerous technological advances. As a consequence it is well-nigh impossible to distinguish the changes which might be attributed to income taxation from those arising from other causes. Nevertheless some attempts have been made. For example, Colm and Lehmann attribute a large share of the responsibility for the de-

pression of 1937-1938 to an income tax induced shortage of risk capital.¹ Others such as Goode, have tried to calculate the influence of the tax upon the supply of labor.² Unfortunately results are indecisive. In extreme cases, however, some support for our conclusions can be found, and this lends plausibility to the assumption that many less extreme cases could be found to support our conclusion if statistical techniques were sufficiently refined to separate out more accurately the causes of changes in the economy. The reduction of the willingness to work in Great Britain, as well as the decline in enterprise there undoubtedly reflect confiscatory rates of income taxation. Nevertheless, this does not clearly establish the presumption of substitution when rates are not confiscatory. As a consequence, rather than attempting to draw empirical conclusions from fragmentary data, those elements in the current situation, both favorable and unfavorable to our conclusions, shall be pointed out.

Factors Enhancing Substitution In the first place the American income tax is steeply progressive. Beginning at 22% on the first \$2,000 of taxable income, the bracket rate

1. Colm, G., and Lehmann, F., "Economic Consequences of Recent American Tax Policy", Social Research, Supplement I, 1938.

2. Goode, Richard, "The Income Tax and the Supply of Labor", Journal of Political Economy, Oct. 1949.

rises sharply even at relatively low income levels. Thus the choice of foregoing leisure and other untaxed elements of want satisfaction for money income is confronted with rapidly advancing tax burdens before income becomes substantial. Even to the college professor, when weighing the teaching of evening or summer school, this progression at low levels of income may serve as a deterrent.

Secondly, our income tax provides for many exemptions. Each individual is allowed \$600 free of tax. In addition exemptions are granted for dependents, and deductions are permitted for medical expenses. Further, social security benefits are tax free. All these things operate to reduce the pressure of income taxation upon minimum living standards. Although such provisions are easily justified on humanitarian grounds, the fact still remains that they weaken the income effect and, therefore, enhance the likelihood of substitution responses.

When consideration is directed to a large bulk of our nation's peace-time governmental expenditures, it can be seen that they either directly or indirectly contribute to the real income of part of the population. In cases where government expenditure furnishes real income, the loss occasioned by the payment of income taxes is not a net loss, and consequently, the possibility of income effect dominance is reduced. This is especially true since the

receipt of governmental benefits usually coincides with lower tax liabilities.³

The advance of public knowledge, through such media as television, radio, and publications in addition to the formal education process, has acquainted a growing proportion of the population with not only the advantages of a greater abundance of goods and services, but also the merits of leisure, security, and the other elements of want satisfaction not purchased directly with money. As a consequence people are now better able to effect a substitution between money income and the other elements of want satisfaction. This growing capability enhances the possibility of tendencies toward substitution being realized in fact.

Factors Weakening Substitution Several factors, however, operate to offset and weaken the realization of the substitution reaction. The money illusion has by no means disappeared from the scene. Prestige and power still are measured in the minds of many people in terms of income before tax. In addition custom plays a powerful role in determining an individual's behavior. The preference for a standard work day, elaborated in the article of Schwartz and Moore, does to some extent exist, therefore, creating

3. The importance of this element was emphasized by Goode, art. cit., p. 429.

a pressure against substituting leisure time for income. Further, beyond a certain point the community may not sanction enjoyment of the other aspects of want satisfaction. Hence, at certain levels leisure may be considered idleness, and pleasant employment might be deemed unmanly and unpatriotic. The influence of considerations of the latter type will depend upon the spirit of the community. Should it be venturesome then the pressure against the realization of substitution will be strong, while a mature or decadent environment will minimize such counteracting influences. It is perhaps superfluous to point out that the pioneering attitude is now decidedly on the wane.

The tax statutes themselves offer certain offsets to substitution by providing so called loopholes which allow some income to go untaxed or be taxed at lower rates. "Expense account" deductions and the favorable treatment of capital gains are examples. To the extent that the tax, on account of such features, is not effective, no substitution effect can be expected. Another offset of growing importance is found in the monopolistic control of the supply of the agents. Thus, a powerful union may secure an increase in wages after a tax increase is imposed on the grounds of maintaining take home pay. Although this prevents the realization of substitution effects, the terminal consequence of shifting is achieved in the first instance.

There are groups within the country whose incomes contain substantial rent elements. Many highly talented individuals, both in the business and professional world, could fall into this category. To the extent that the rent element is present at the margin, substitution is precluded. However, this need not always be the case. For example a movie actor who would work for \$10,000 per picture may receive \$100,000, \$90,000 of his income per film being rent. Despite this fact, after he had made two or three pictures during the year he might be unwilling to work further because of taxation. This could occur for two reasons. The increment rate might be so high that not only the rent, but also part of the necessary payment would be taken away. Second, because of already enjoying a substantial income, the actor's conception of a minimum payment necessary to induce him to work may well be revised upward. Either of these situations could convert a rent case into one where substitution is effective.

Finally, work is by no means unpleasant to all individuals. Many derive genuine satisfaction from the job itself. To the extent that this factor plays a significant role, substitution reactions are less likely to ensue. However, despite the fact that some quantity of work may itself yield gratification, this does not guarantee that the marginal increments thereof will. For example, a teacher

who really enjoys meeting one or two classes per day may consider a fourth or fifth class to be a hardship. What is important, if substitution reactions are to occur, is not that all work be unpleasant, but that the marginal units of work, which are the subject of substitution, be less desirable than the alternative.

On the whole it would seem that the elements which strengthen substitution are gaining while those which deter it are on the wane. Progressive features and exemptions are becoming ever more deeply entrenched in tax statutes, while welfare becomes a more and more dominant objective of peacetime expenditure. At the same time the population is becoming more leisure and security conscious. On the other hand the money illusion is in the process of slow disintegration, as other more sophisticated values command increasing attention. Tax loopholes are attracting attention and consequently being plugged. With growing progression marginal rent cases should become more infrequent. Only the monopolistic shifting offset seems to be gaining, and this no real offset at all since the result, shifting, is realized without the intermediate step of substitution effect dominance. Thus it would seem that only drastic changes in the want satisfaction patterns of the community could be offsetting, or could be expected to offset in the future, the conclusion that the income tax is shifted in part at least and that production is reduced.

Policy Implications of the Conclusions

Although it was not the purpose of this study to reach conclusions which would clearly indicate the advisability of specific tax proposals, the results can be of importance, when weighed in conjunction with other relevant factors, in the formulation of tax policy. Usually income tax statutes are constructed in view of three considerations. First, the tax would produce revenue, and in the process reduce the funds in the hands of private individuals. Second, the progressive rate structure would alter the distribution of income, and in so doing cause some change in the composition of production.⁴ Third, the tax has implications of importance to fiscal policy. The conclusions of this study point up among others, the following additional considerations which should be evaluated in the development of income tax proposals.

4. Income taxation, along with all other revenue producing levies, necessarily reduce demand since funds are withdrawn from private hands. That this reduction may be counteracted as a result of public expenditure is both obvious and beyond the scope of this treatise. The diminution of private demand ramifies in two important directions. First, in the aggregate sense it creates effects of great significance to fiscal policy makers. This issue has received such comprehensive treatment elsewhere that it need not detain us here. Second, the

The Effectiveness of Progression The progressive feature, contained in most income tax statutes, is intended to achieve a more equalitarian distribution of income. As has been developed throughout this study, progression encourages substitution which in turn leads to shifting. If part of the income tax incidence is shifted, the burden of the tax will not be distributed in the manner intended by its framers. Should this shifting be concentrated in groups of higher income, and steeply progressive rates point to that being the case, the equalitarian intent would be partially frustrated. Moreover, the channels through which this shifting takes place (increased leisure, more liquid and secure portfolios of investment, etc.) are in themselves inimical to the equalitarian intent.

4. relative composition of demand may be altered. This would be an important effect of income taxation. As noted in Chapter II this might be considered as backward shifting of the income tax. However, at that point it was indicated that altered patterns of consumer expenditure would not be considered to be part of the shifting process. Income taxation can influence the pattern of consumption in two general ways. First, by altering the relative distribution of income between groups with different consumption habits the overall pattern will be changed. Thus a progressive system alters the relative proportion in favor of the lower income groups at the expense of the upper. Therefore, the goods consumed by the former assume a more important place in the overall consumption picture, while the products usually purchased by the latter decline in significance. This unquestionably has occurred in the United States during the last thirty years. The mansion has yielded much of its former position to the middle or lower priced home, the custom built limousine to more standardized vehicles, and the fine arts to movies and television. This

The Cost of Progression The process of shifting, which progression encourages, takes place through a decrease in the supply of the agents of production. This would tend to decrease production itself. The loss in productivity must be charged as a cost of achieving the equalitarian objective. This is not to argue that a policy directed toward a more equitable distribution should be abandoned, it merely emphasizes that the cost be recognized and evaluated. Further, it would indicate that the policy maker should utilize all devices at his disposal to reduce such declines in productivity. Proposals to alter the tax statutes to permit more complete loss offsets, and to permit income averaging, would, if adopted, be examples of such devices.

4. equalitarian effect must be attributed to the income tax system.

Second, the income tax may alter the pattern of consumption within the groups themselves. The following suggested generalizations may shed light upon the direction of these changes. Where, as a result of the tax, reactions dominated by the income effect occur, then the consumption pattern is being reduced in that area of products which the group deems to be necessities. Where reactions to the tax are characterized by substitution effect superiority, then the group in question is increasing the relative proportion of products which it considers to be necessities and reducing the proportion of luxuries. Needless to say the concept of what constitutes a necessity or a luxury is subject to wide variations between groups, and as a consequence, these generalizations may not reveal very much in regard to specific product types. However, when conclusions relating to the first type of consumption variations are simultaneously brought into consideration the implications of the generalization become clearer. Although we shall not dwell further on the more specific influences of the income tax on the consumption pattern it is apparent that it offers many prospective avenues of interesting and useful investigation.

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