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THE NATIONAL BUREAU'S INTERNATIONAL ECONOMIC STUDIES

P A R T I I

Reports on Selected Research Programs

The National Bureau's program of research on international economic relations, which has been carried on during the last several years with the aid of funds provided by the Rockefeller Foundation and the National Science Foundation, is now being extended under a new grant by the Ford Foundation. I shall report briefly on some of the results of this work and also on some of the research now under way or contemplated.

SOME CONTRIBUTIONS TO IMPROVEMENT OF STATISTICAL TOOLS

The balance-of-payments strains which we have been experiencing with little relief since 1958 have made it imperative to try to improve the statistical tools available for analyzing our international economic position. The National Bureau's research activities have been partly directed toward helping to meet this need.

One such contribution took the form of a note in our Annual Report four years ago under the heading "Export Orders as a Guide to the Development of Exports." The note examined the inadequate information then available on the subject and contrasted it with the more comprehensive data collected and published by the German statistical authorities. It ended by stressing the importance of obtaining fuller information on export orders, export shipments, and order backlogs as a basis for assessing our balance-of-payments prospects.

Our analysis helped, I believe, to direct attention to the question. Starting in 1963 and extending back to October 1962, the Bureau of the Census inaugurated an export order series covering durable goods other than

motor vehicles as reported by manufacturers. The new export order series is plotted in Chart II-1 along with comparable figures on export sales (i.e., actual billings on export

shipments) as reported by the same respondents. These sales account for close to one-third of total exports, which are also given, seasonally adjusted, in the chart.

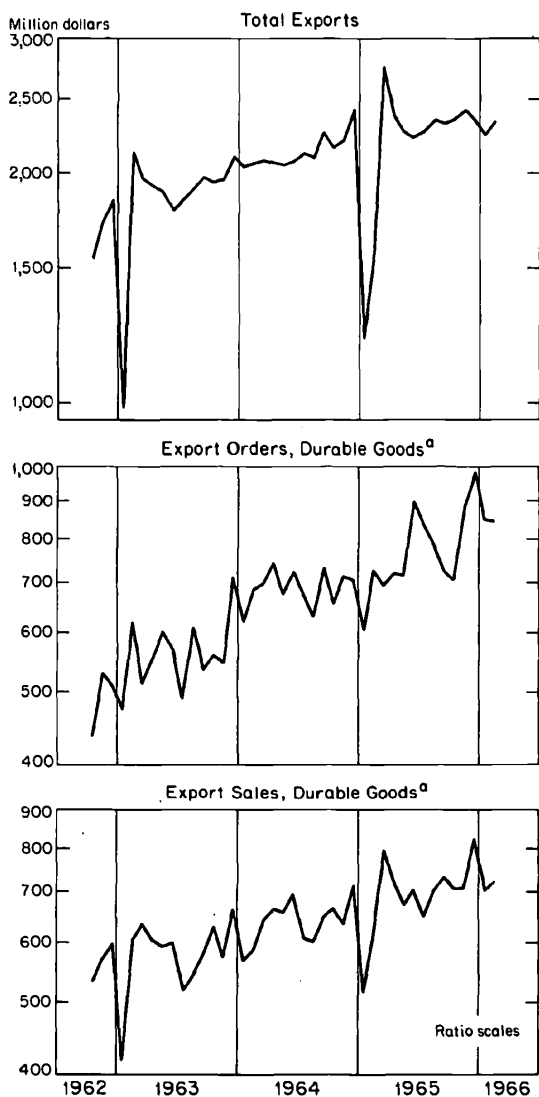
The export order series does not yet cover a period long enough to permit seasonal adjustment or a proper testing of its predictive value. The recent figures do serve, however, to show the interest of this new tool and to stress the importance of improving our knowledge of it. They show a rise of 24 per cent in new export orders in the last quarter of 1965 over a year earlier, culminating in an increase of 39 per cent in December. Export orders in January 1966, though down (apparently seasonally) from December, again registered a rise of 39 per cent over January 1965, and February showed an increase of 16 per cent over a year earlier. These results look much more favorable than might be gathered from the actual course of exports in recent months, and one would like to know how reliable the new order series is as a guide to the future.¹ More time will be required to permit a clear judgment on this question. This experience illustrates the importance of advance planning to meet our statistical needs. We cannot suddenly improvise a tried and proven statistical series when an emergency is already upon us.

Another improvement in our international statistical arsenal is being developed in our work on new methods of measuring international price competitiveness.

For lack of anything better, analysts have tried far too long to get along with such series as unit value indexes of exports and imports or such indirectly relevant data as national wholesale price indexes and their components. The study now being carried to completion by Kravis and Lipsey demonstrates the feasibility of constructing measures which are far better suited to the purpose in at least two respects. First, they are collecting prices which, in the main, are those actually

CHART II-1

Total Exports, All Products, and Export Orders and Sales of Durable Goods^a, October 1962–January 1966



SOURCE: Bureau of the Census, Series M4-A.

NOTE: The export order series and export sales series include some military aid exports, which are excluded from total exports.

^aExcluding motor vehicles and parts.

¹Uncertainty also arises because the data on orders and sales include some military aid items not included in the usual export statistics.

used in international trade transactions. Much of this information comes from buyers rather than sellers, thus providing information on some products otherwise difficult to cover. Second, the data collected on prices charged by U.S. producers and on those charged by their foreign competitors are combined into comparable price series by a common set of international trade weights. This provides an assurance, which one cannot have with regard to any of the series hitherto employed, that a rise or fall in the U.S. index relative to foreign indexes represents a genuine difference in price movements and not simply a difference in the composition of the indexes.

Though it is too soon to say, we believe that the importance of the information to the assessment of our international position augurs well for the adoption and continuation of these new methods by the appropriate statistical agencies.

RESEARCH ON EXPORTS OF LESS DEVELOPED COUNTRIES

Part IV of this report includes individual accounts of progress on our research projects in international economic relations. Here I should like to elaborate on the work on exports of manufactures by less developed countries to developed countries, a subject of interest in its own right and also because of the broader implications and uses of some of the methods employed.

Let me first indicate the method which we are using to identify the kind of manufactures in which the less developed countries might be expected to find a comparative advantage in international trade. According to the Heckscher-Ohlin theorem, these would be products requiring large inputs of labor compared with capital, since labor is the more abundant factor of production in the poorer countries. At least until very recently, empirical work on factor intensities in different industries and countries has been mainly in terms of the stock of physical capital per worker and has failed to take account, except qualitatively,

of differences in labor skills, or "human capital."

Chart II-2 embodies a rather simple technique for measuring, or at least approximating, inputs of both physical and human capital by a single variable, that is, value added per employee in manufacturing. This technique assumes that, in interindustry comparisons, the wage part of value added per employee is a reasonably good proxy for skills, and that the nonwage part is a reasonably good proxy for physical capital. Evidence bearing on both assumptions will be examined in the study. At this time let me add only that, if the approach is valid, it may have wider applications than that made of it here.

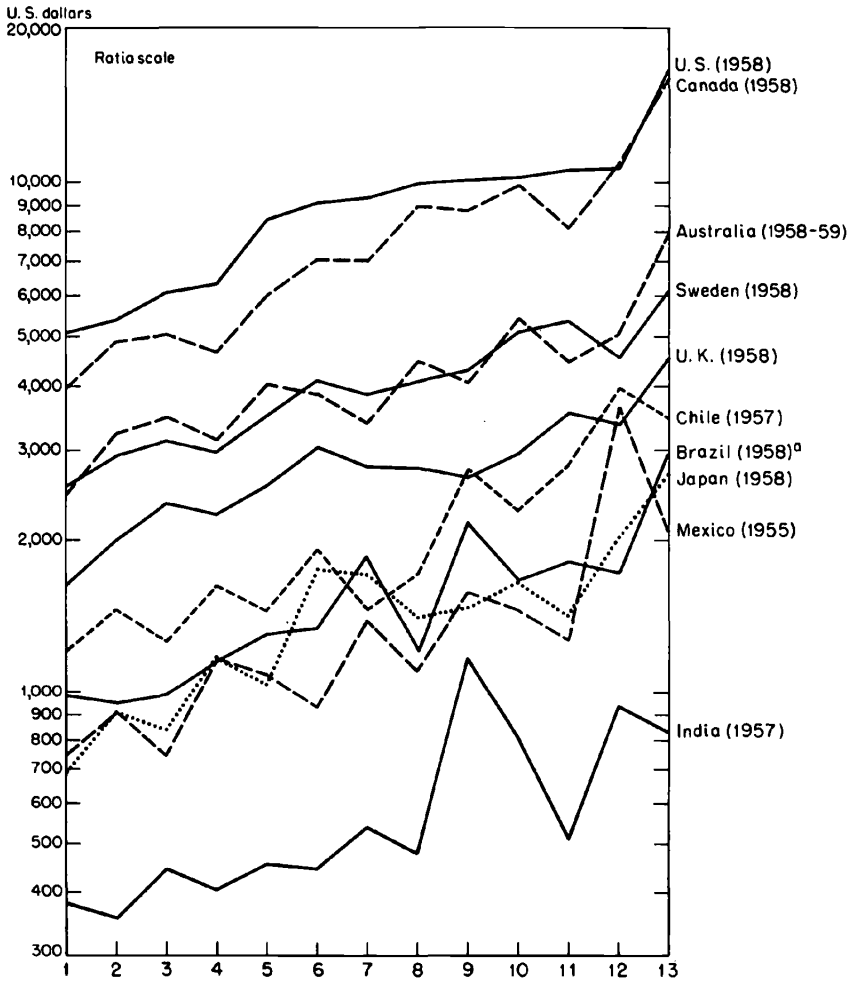
Chart II-2 ranks thirteen main groups of manufacturing industries in ascending order of average value added per employee in the United States in 1958 and gives the corresponding averages, measured in dollars and arrayed in the same sequence, for nine other countries. The striking thing is the broad similarity of the industry rankings as one moves down the scale from an over-all average value added of more than \$9,000 per employee in manufacturing in the United States to \$1,500 in Japan and \$500 in India.

These features tend to confirm that, even under extremely different relative factor endowments and factor costs, the ranking of industries by labor or capital intensity tends to be much the same from country to country. Instead of showing significant factor reversals, as some recent critics of the Heckscher-Ohlin theorem would have it, the evidence suggests that the relative spread between labor-intensive and capital-intensive industries is even greater in low-wage countries than in some of the more advanced countries. It might be hoped that if these findings are supported by further research, they will contribute to clearer thinking about the kinds of industries which are best suited to the factor endowments of the less developed countries.

The immediate purpose is, however, the more limited one of finding an objective guide to the selection of the products appropriate for consideration in a study of exports of

CHART II-2

Value Added by Manufacture per Employee in Thirteen Industry Groups



SOURCE: Computed from country tables in *The Growth of World Industry*, United Nations, 1963.

NOTE: The industry groups are from the International Standard Industrial Classification as consolidated in the UN source noted above, but renumbered and arranged in ascending order of value added per employee for the United States. The original ISIC numbers are given in parentheses.

- | | |
|--|--|
| 1. Clothing, footwear, and made-up textiles (24) | 7. Machinery, transportation equipment, and metal products (35-38) |
| 2. Textiles (23) | 8. Nonmetallic mineral products (33) |
| 3. Wood products and furniture (25-26) | 9. Rubber products (30) |
| 4. Leather and leather and fur products (29) | 10. Paper and paper products (27) |
| 5. Miscellaneous manufactures (39) | 11. Food, beverages, and tobacco products (20-22) |
| 6. Printing and publishing (28) | 12. Basic metals (34) |
| | 13. Chemicals and chemical, petroleum, and coal products (31-32) |

^aFor Brazil, "metal products" are included in group 12 rather than group 7.

manufactures by less developed countries. For instance, statistics on this subject sometimes include among manufactures the non-ferrous metals, or petroleum products, or chemicals, in all of which the trade is very large. Or these products are sometimes excluded on the ground that the industries concerned are only "processing" industries. To my mind the more relevant point is that the very high value added by manufacture per employee in these industries is indicative of their great requirements of capital, and that their location is influenced more by the availability of the raw materials than by the cost of labor. Other processing industries, such as the tanning of leather or the manufacture of jute, show very low value added per employee and, by this criterion, can properly be regarded as labor-intensive manufactures.

The industry groupings employed in Chart II-2, which are taken directly from the United Nations source indicated, are very broad and are subject to the objection that they may conceal more than they reveal. We are therefore extending the analysis to much more detailed comparisons between the United States and several other countries—including the United Kingdom, Japan, and India—representing different levels of economic development and different factor proportions. In each case we are going into as much industry detail as possible, subject to the need to achieve reasonably good comparability between the U.S. industrial classification and that of the other country concerned. Perfect comparability in this respect can never be achieved, of course, and even industries which are nominally the same may be, in fact, rather differently composed.

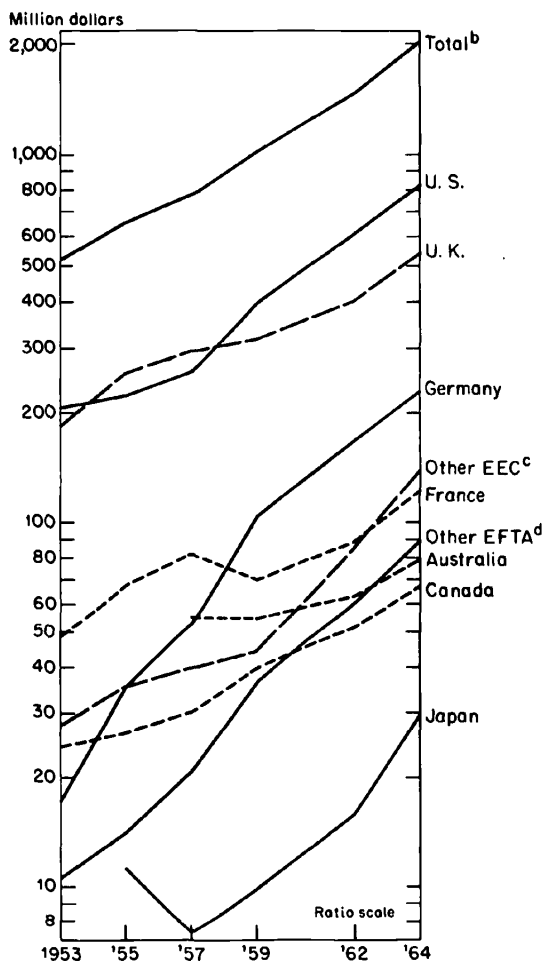
Despite the problem of comparability, the results obtained by these more detailed comparisons show much the same broad pattern of industry ranking by factor intensity as that seen in Chart II-2. There are, to be sure, numerous minor instances of factor reversals between countries, but none, I believe, which are very relevant to the flow of international trade. We can therefore proceed with some confidence to identify labor-intensive manu-

factures in considerable detail and to do so in a way which recognizes that the scarcity of human capital—i.e., skilled labor, managerial experience, and so on—is no less crucial to the less developed countries than the scarcity of physical capital. The list includes, of course, textiles, clothing, and shoes but also a host of other items—plywood and other wood products, furniture, chinaware and pottery, ceramic tiles, gloves and other leather goods, cutlery, games, toys, bicycles, sporting goods, printed matter, jewelry, costume jewelry, and notions. Without going very far toward the capital-intensive side, the list can be extended to include still other items such as light electrical equipment, pleasure boats, hardware and certain other metal products, and some items or components of machinery and transportation equipment.

On the basis of such a list, we have attempted to bring together in Chart II-3 comparable data for the period 1953 to 1964 on imports by the United States and other developed countries from the less developed countries of those products deemed to be labor-intensive. The value figures, recorded at current prices, show a steady increase in the total of these imports, adding up to a fourfold rise over the eleven-year period. If deflated to adjust for price increases, the series would show a slower rise, but still, I think, faster than may be generally supposed. The increase is common to most of the importing countries or country groups shown. Nevertheless, the United States alone (despite the fact that its imports are recorded f.o.b. and the others c.i.f.) accounts for 37 per cent of the total in 1964 and, together with the United Kingdom, for close to 60 per cent.

The study on which I am engaged will, of course, also include an analysis of the trade by origins as well and will show an equally marked concentration in this respect. Hong Kong alone accounts for a very large part of the total, and its status as a less developed country is subject to dispute. The objection is less relevant if we think of the analysis as relating more specifically to exports of manufactures by low-wage countries. With this in

CHART II-3
Imports of Labor-Intensive Manufactures
by Developed from Less Developed Countries,
1953-1964^a



SOURCE: Compiled from publications of U.N. Statistical Office.

^aU.S. and Canadian imports are valued f.o.b.; other countries', c.i.f.

^bExcluding Australia, Japan, and Switzerland.

^cBelgium-Luxembourg, Italy, and the Netherlands.

^dAustria, Denmark, Norway, and Sweden (Switzerland and Portugal not included).

mind, I am bringing other low-wage countries into the analysis as well.

The dynamic development shown in Chart II-3 is at least indicative of the potentialities of the trade and may provide some basis for

encouragement. One cannot, however, simply project these trends on into the future. As suggested by the figures for France, a number of industrially advanced countries have followed restrictive policies all along, and the United States and other countries have adopted policies designed at least to slow down the rise in imports of textiles and certain other manufactures figuring importantly in the trade. These considerations suggest that accessibility of markets rather than preferential treatment may be the key to the future growth of exports of manufactures by less developed to developed countries.

PLANS FOR FUTURE RESEARCH

One reason for going into some detail on the topic just discussed is that we expect to continue work on the subject as one of the projects to be financed under the new grant from the Ford Foundation. It is scarcely necessary to stress that the question is of interest to the United States not only because of its broad political and welfare aspects but also because of its relation to our foreign economic aid and because of the special problems which imports present for low-wage industries. Moreover, the harmonious development of our trade with other developed countries will depend in part on how we and they handle trade relations with the less developed countries. The persistence of restrictive and discriminatory policies in this regard could react unfavorably on relations among the developed countries.

Another project on which work has started is a comparative study of balance-of-payments adjustment policies of leading industrial countries. This study is being conducted by Michael Michaely, here on two years' leave from the Hebrew University in Jerusalem; his report in Part IV gives a brief review of the work done and plans made during the first several months. The initial meeting of the Advisory Committee for this project was held at the beginning of March and proved to be very rewarding. It is composed of outstanding economists in the international area,

under the chairmanship of Peter Kenen, and we benefited by the group's discussion of our plans for future research.

A third topic that we are considering concerns the relation between U.S. manufacturing abroad and U.S. exports. This question has been widely discussed during the long period of balance-of-payments strain which we have been experiencing, but the need for comprehensive and independent empirical research is still apparent.

The effects of U.S. manufacturing abroad on U.S. exports are likely to be different from one group of products to another and may also be expected to vary through time. Some plausible hypotheses are:

1. The establishment of new foreign manufacturing facilities under American ownership or license will tend to create new demands for capital equipment from the United States during the construction period and, for at least some time thereafter, for replacements and for new equipment embodying technological advances.

2. As the new foreign facilities begin production and expand output, their operations may create new demands, at least initially, for materials and components from the United States for use in their own production, though subsequently they may produce or procure more of these inputs locally.

3. The manufactures produced by the new foreign facilities will tend to displace exports of the same products from the United States or, in the case of technologically new products, prevent these exports from ever getting started; but their own sales activities may stimulate additional demands for complementary products from the parent company or other companies in the United States.

These hypotheses suggest that there are both positive and negative influences on U.S. exports connected with the development of U.S. manufacturing operations abroad. They do not in themselves imply which set of influences is the stronger, but they do suggest that both types may vary in force the longer the expansion of foreign operations continues and the larger these operations become.

Still another topic which we have in mind is the relation between technology and international trade. During the postwar dollar shortage it was widely held that a prime

cause, and one not easily remedied, was the formidable technological lead established by the United States. After the shift in the U.S. balance of payments in 1958, views on the relative state and pace of technological development also shifted, and stress was placed on the erosion of this country's advantage. Now, as Europeans look at their large and growing payments of licensing fees to the United States and at the competitive strength of U.S. manufacturing enterprises in Europe, there is again a pronounced tendency, at least abroad, to stress the technological advantages enjoyed by the United States as a result of its heavy expenditures on research and development and the part played by the U.S. government through defense contracts.

One point which emerges clearly enough is that international trade theory needs to take fuller account of the advantages or disadvantages which different countries experience because of leads and lags in technology, and that cost and price differentials do not suffice to explain the flow and composition of international trade. It is true also that, despite the emphasis given in recent years to technological factors in discussions of trade and payments developments, empirical research on these questions has been limited. The work that the National Bureau has been doing on international price comparisons might therefore appropriately be followed by a systematic study of technology and international trade, if a promising approach to the question can be developed. As a first step, we are considering plans for a conference to explore various possible approaches to systematic research in this area. If the results of such a meeting were encouraging, further studies of technology and trade could be undertaken.

HAL B. LARY

TAX POLICIES FOR ECONOMIC GROWTH

The National Bureau's study of tax policies for economic growth is now beginning to bear

fruit. As of late winter of 1966, two conference reports have been published; one study has been approved by the Board and is now in preparation for press; another study is being revised after staff review and is soon to be submitted to the Board; a third study is in staff review, a fourth manuscript is to be delivered and assigned for staff review in early spring; and four other projects are under way. While not complacent about our progress to date, we are heartened by the completion of several undertakings and good prospects for others in the near future.

Taking stock provides us the occasion for reviewing our objectives and the problems we must deal with in attaining them. Briefly stated, we are seeking the answers to two questions: (1) Has the U.S. tax structure had measurable effects upon the nation's economic growth? (2) If so, what changes in the tax system would contribute to faster growth?

In pursuing this inquiry, we have asked ourselves what kind of behavior that is consequential for growth should engage our attention, and what features of the tax system should we investigate because they are importantly linked to that behavior? One response takes account of a simple fact of U.S. economic life: private business enterprises account for a very large share of total economic activity, and a substantial part of the economy's growth consists of the growth of these enterprises. Another answer is dictated by the basic economic identity that an increase in the nation's capital resources requires an equal increase in saving. While the relative magnitude of the contribution of capital accumulation to economic growth has not yet been determined, there is little argument that capital is an important element of production capability and that increases in capital are important components of increases in total ability to produce. It is equally relevant that capital accumulation is a central motivating force in the decision-making of business and households. The connection between various features of the tax structure and private saving and investment decisions must, therefore, occupy an important place in any serious in-

quiry into the phenomenon of economic growth.

Another fact of economic life that requires our attention is that personal effort represents a very large proportion of the total measured input in production and that growth in the amount of this effort is an important element of economic growth. Theory suggests that the adverse effects of income taxation on effort become more pronounced the greater the marginal rate of tax. Economizing on our research resources would accordingly appear to dictate that we be concerned primarily with individuals in the upper brackets. Moreover, some of those individuals control the allocation of large amounts of resources; their attitudes about their work, which conceivably may be importantly influenced by the nature and amount of the tax liabilities they bear, may be highly consequential for growth.

Yet another fact of economic life is that much of the growth of the economy is associated with the introduction and exploitation of innovations and advances in products and production processes. The dynamics of the economy afford a powerful impulse to growth both by creating opportunities for new enterprises and new opportunities for old businesses and also by increasing productivity. But a dynamic economy is also a risky and uncertain one. The influence of the tax structure on the willingness of individuals and companies to incur risks, accordingly, is an important concern of our study.

This listing, of course, does not exhaust the questions which should be raised about the relationship between the structure of taxes and the economy's growth performance. It does, however, indicate the nature of the inquiries we have pursued.

More specifically, our study of tax policies for economic growth comprises two principal sets of investigations focusing on the ways in which taxes affect those personal and business activities which bear on the expansion of the volume of resources and on the effectiveness of their use. One set, concerned with various features of business income taxation and the capacity and incentives of business enterprises

to innovate and to grow, is being carried out by Challis A. Hall, Jr. (Yale University), Thomas M. Stanback (New York University), and myself. A second set of studies focuses on the effects of the individual income tax on personal effort, saving and investment, and on the willingness and financial ability of individuals to undertake business ventures. These inquiries are being conducted by Daniel M. Holland (M.I.T.), C. Harry Kahn (Rutgers University), and Roger F. Miller (University of Wisconsin). In addition to these studies, the National Bureau, in cooperation with the Brookings Institution, prepared and convened two major conferences in the fall of 1963 as part of the tax project. The first focused on the issues which arise in shifting the emphasis between direct and indirect taxes, and the second examined the influence of tax policies on economic growth in six European countries and Japan. The first conference report was published in July 1964. The second was issued in March, 1966.

Drawing on these projects and conference materials as well as on other relevant investigations, I am now preparing a summary report in an effort to integrate and interpret these research results.

Financial support for these efforts has been provided by grants from the Rockefeller Brothers Fund and the Life Insurance Association of America.

BUSINESS INCOME TAXATION

Challis Hall's work on the corporation income tax has followed two principal lines of investigation. Initially, Hall undertook to examine alternative hypotheses about the short-run shifting of the corporation income tax. The extent to which and the manner by which the corporation income tax impinges upon or is shifted from the returns to capital in incorporated enterprises may be a major factor in evaluating the impact of taxation on economic growth in the United States. Since so large a proportion of U.S. national income originates in the corporate sector, the impact of corporate taxation on the growth of the

capital stock and on the capital-labor ratio in corporate enterprises has an important bearing on the growth of total national income. Hall presented a paper with his preliminary findings on short-run shifting of the corporation income tax at the December 1963 meetings of the American Economic Association. Final revision of this part of his study has been deferred pending completion of the second phase of his investigation.

Hall's second line of inquiry has relied primarily on interviews with the senior executives of fifty major corporations, aimed at examining the way in which a number of features of the corporation income tax enter into management decisions with respect to capital outlays, the introduction of new products and processes, and research and development. These interviews were conducted during 1962. From the point of view of the central subjects of these interviews, both advantages and disadvantages may be cited with respect to developments in that year. On the plus side, 1962 was the year in which significant liberalization of depreciation allowances was afforded by administrative action, and an investment tax credit was enacted. These developments undoubtedly served to sharpen corporate executives' thinking about the relative importance of tax features and other factors in arriving at decisions about the kinds of activities in which Hall was interested. On the other hand, these tax developments were either impending or so new that most executives had not yet arrived at a careful and tested evaluation of their impact. In view of these considerations, Hall subsequently submitted a questionnaire to his interviewees, eliciting their views concerning the impact of these changes in the law. For this phase of his study, then, Hall had his original interviews, the questionnaire responses, and a considerable amount of other materials, such as annual reports and company appropriation manuals, furnished by the interviewed companies.

Integrating this substantial volume of diverse materials into a comprehensive delineation and analysis of the effects of corporate

taxation on corporate growth policies has been, clearly, a sizable undertaking. Hall has prepared a draft which is now in the hands of a staff review committee. When he has completed the work on this phase, he will turn to final revision of his paper on short-run shifting of the corporate tax.

Thomas Stanback's study, which also relies on interviews with top corporate executives, is focused on the effects of changes in depreciation provisions on investment policies in the textile industry, particularly outlays for modernizing production facilities. This inquiry was initiated in 1961 by Melvin White of Brooklyn College. Recognizing the importance of invention and innovation for the growth of enterprises, hence of the economy, we sought to develop a study concerning tax influences on innovational activity. The textile industry was singled out for special study because it was widely deemed to be an industry which had lagged technologically in the United States although now on the verge of sweeping technological advances. Moreover, the industry was the beneficiary of a then recent Treasury ruling which permitted the use of materially shorter service lives for depreciable facilities than those found in Bulletin "F" and which was intended explicitly to spur modernization investment. Stanback took over the study at an early stage, pursuing his inquiry by interviews with executives of a cross section of textile manufacturing companies. A draft of Stanback's study has gone through staff review, and he is now revising his manuscript to take account of the review committee's suggestions.

My survey of depreciation practices under the provisions of the Internal Revenue Code of 1954 has been approved by the Board of Directors and is now being readied for publication. The objectives in this study were to measure how widely business has taken advantage of the accelerated depreciation methods afforded in the 1954 legislation, to compare the experience of different groups of enterprises according to size, organizational form, and industry, and to estimate the effect of the use of these provisions on total

depreciation allowances and on tax liabilities. I have also made some rough estimates of the effect of the accelerated allowances on the volume of corporations' capital outlays in 1959.

Responses of the interviewees in the Hall and Stanback investigations give strong support to the view that corporate management, on the whole, appreciates the advantages conveyed by rate reduction, depreciation liberalization, an investment tax credit, and, by inference, similar tax changes. These advantages—increasing the net-of-tax rate of return realizable upon investment in fixed capital and augmenting the cash flow generated by such assets—clearly work in the direction of spurring capital formation. The consensus among the persons interviewed in the Hall and Stanback studies was that the business tax developments in 1962 and 1964 encouraged a higher volume of investment in depreciable facilities than would otherwise have been forthcoming. It is not feasible, of course, to estimate the amount of such incremental investment on the basis of interview responses.

In my survey, I found that business response to the 1954 accelerated depreciation provisions was substantial, measured in terms of the amount of property depreciated under the accelerated methods and the amounts of depreciation allowances calculated under these methods. For example, somewhat more than 45 per cent of eligible facilities acquired by corporations after 1953 and still on hand in 1959 were in accelerated method accounts in the latter year. Among large manufacturing corporations, somewhat more than two-thirds of such facilities were in accelerated method accounts in 1959. Of the \$10.7 billion increase in total corporation depreciation allowances between 1954 and 1960, about \$7.9 billion is accounted for by the increase in allowances under the accelerated methods. Among large manufacturing companies, over half of the 1960 depreciation allowances were accelerated, and more than two-thirds of the total allowances of large construction corporations were computed under accelerated methods. Use of accelerated depreciation

methods by corporations in 1959 resulted in total allowances \$2.4 billion more than would have been allowed had only the straight-line method been available. As a consequence, corporate tax liabilities in that year were an estimated \$1.3 billion less than they otherwise would have been.

We have incorporated our estimates of the increase in corporate cash flow and of the average increase in rate of return realizable on investment in depreciable facilities into a simple system of equations expressing the demand by corporations for depreciable facilities and the supply of investable funds in the corporate sector. In the absence of empirical data, we have assumed that the elasticity of demand for capital goods may range from -0.5 to -2.5 , and the elasticity of supply of investable funds from 0.5 to 5.0 . Under this range of assumptions the increase in corporate capital outlays in 1959 which could be attributed to accelerated depreciation might be as small as \$1.3 billion or as large as \$4.6 billion.

PERSONAL INCOME TAXATION

Daniel Holland's research is focused on some of the most basic and elusive questions generated by a graduated personal income tax. Fundamentally, he is attempting to determine whether individuals subject (actually or potentially) to high bracket rates are deterred from additional effort, whether their choices of endeavors are distorted, whether their effectiveness is reduced by diversion of their attention to tax problems, whether they become less venturesome.

Holland has organized his project along three lines of inquiry. One involves an effort to measure the reward received by top corporation executives, an important group among those individuals to whom upper bracket income tax rates apply. Together with Wilbur Lewellen (Purdue University), Holland has developed a method of valuing all components of compensation on a basis equivalent to salary payments. Lewellen has taken primary

responsibility for developing the data and analyzing findings in this area.

Lewellen's study is based on a sample of 558 executives—the five or fewer most highly paid as reported in company proxy statements—in fifty manufacturing corporations during the period 1940–63. On both a time series and a cross-sectional basis, for the entire sample and for industry subgroups, he has marshalled data to measure the amount of and change in various components of executive compensation, to compare these with trends in incomes of other groups, and to appraise developments in executive compensation in the light of other aspects of the use of executive skills.

Lewellen's draft is virtually completed. Among his findings are:

1. After-tax salary and bonus of top executives fell between 1940 and 1945, regained the 1940 value by 1947, rose modestly—about 10 per cent—above the 1940 level by 1950, and have remained virtually constant since that time.

2. Between 1940 and 1955, total compensation after tax (not including expense account items and insurance paid for by employers) about doubled for top executives; since 1955, total compensation, after tax, has remained unchanged.

3. For top executives, after-tax salary decreased from 68 per cent of total after-tax compensation in 1940–49 to 32 per cent in 1955–63. In the latter period, gains from stock options exceeded salary as a source of remuneration, averaging 39 per cent. Pensions, on average, accounted for 16 per cent of after-tax compensation, and other deferred compensation for 12 per cent. In round numbers, contingent ownership awards were about two-fifths, deferred compensation slightly less than one-third, and salary and cash bonus about one-third of total after-tax compensation.

4. Deflating with the consumer price index now yields an after-tax total compensation of the top executive below the 1940 level; it has slightly exceeded the 1940 amount in only three years since then—1955, 1956, and 1957—when gains from stock options were extraordinarily high.

A second part of Holland's inquiry, still in an early stage, is an analysis, based on the Treasury's Tax Files for the taxable years 1960 and 1962, of the income, deduction, and

taxpaying characteristics of individuals reporting salaries in excess of \$25,000. The Tax Files, based on stratified samples of about 100,000 returns, permit a much more detailed examination of various magnitudes and relationships than can be obtained from *Statistics of Income*. For example, the Tax Files afford a distribution of the taxpayers in any given income interval by effective rate of tax or by marginal tax rate instead of merely providing an average effective or marginal rate for the entire class.

A third line of inquiry, which has commanded most of Holland's research time during the past year, relies on interviews with individuals in various entrepreneurial, executive, and professional fields to get more directly at the effects of taxation on effort. Holland has interviewed 123 persons, including senior officers of very large corporations, presidents (often younger men) of smaller companies, corporate executives at the middle management level, property developers, scientists and engineers in business, and a group of leading business and professional men representing a cross section of investment and entrepreneurial interests in a vigorously growing western city.

Distilling from these interviews, which run from one to two hours each, some useful conclusions about the effects of income taxation on economic behavior requires a careful and time-consuming analysis of a very large volume of material. Holland hopes to complete a first draft on this phase of his study by the end of the summer of 1966.

Harry Kahn's research stems from another of the basic questions generated by a graduated personal income tax: how does such a tax affect the willingness and capability of individuals to undertake risky ventures? Kahn's focus is principally on the question of capability; he is attempting to determine how much the tax burden on unincorporated businesses and professions is increased by year-to-year fluctuations in their incomes. If it is correct to assume that the greater the range of income variation, the greater the risk in the enterprise, then the results of Kahn's

investigation should afford an index of the adequacy of the present (and certain alternative) loss carry-over and income averaging provisions in offsetting the bias against riskiness in a graduated income tax.

To carry out this analysis, Kahn is relying heavily on an identical sample of Wisconsin state individual income taxpayers, data from whose returns are available for some or all of the years 1947-59. A subsample has been drawn for returns showing income from a business or profession and those showing a loss. The data have been transferred to magnetic tape, and computer programs have been developed to simulate the operation of the present law's loss carry-over and averaging provisions and of a number of other averaging devices. Out of these computer experiments, Kahn hopes to be able to answer such questions as (a) how much of an operating loss is typically offset by the loss carry-over provisions, and how soon after the loss is sustained; (b) does the efficiency of the loss carry-over provision appear to vary systematically with taxpayer characteristics, such as type of business, size of average income, composition of income, etc.; (c) what is the difference between the actual tax liabilities of the individuals in the sample and the liabilities they would have incurred had their total incomes over a period of years been realized in equal annual amounts; (d) how much of this difference is removed by application of the 1964 Revenue Act averaging provisions; (e) how do other averaging systems compare in this respect; and (f) how much of the difference between actual and "even-flow" liability is eliminated as the averaging period under various averaging systems is lengthened?

Kahn's progress has depended very largely on the pace at which his basic input—the taped data file—was produced. Because of numerous difficulties, production of usable tapes lagged seriously behind schedule. A usable tape was, however, produced early in 1966, and several of the programs developed to answer the questions listed above have been tested and appear to be sound. There

are, therefore, good prospects for rapid progress on this phase.

A second concern centers around the implications of trading in operating loss carry-overs. On the one hand, such trading seems to imply that the loss carry-over provisions are somewhat less than perfectly efficient, since the loss firm at the time of the transfer has not been able fully to exhaust the carry-over and anticipates that it will be able to do so, if at all, on terms that are less favorable than those that may be realized through transfer. On the other hand, the argument has been made that transferability reduces the extent of "wasted" loss offsets and thereby increases the efficiency of these provisions.

The collateral question is whether transferability of loss carry-overs significantly and adversely affects market structure, as is often alleged, or serves to foster inefficient, tax-motivated business combinations.

These questions arise primarily in connection with corporate business experience. Research in this area, accordingly, will require other data and other approaches than those involved in Kahn's work.

Roger Miller's study of the impact of the present tax treatment of capital gains and losses on individuals' saving and investment patterns is an econometric investigation based on the Wisconsin state income taxpayer file for the years 1947-59, interviews of a subsample of the file, and, for most of the subsample, data obtained from the Social Security Administration. Among the major questions with which the study is concerned is the extent to which present tax provisions lock individuals into investment positions, the extent to which this "locking-in" depends on the taxpayer's marginal tax rate, age, portfolio composition, and a number of other income and wealth factors which may influence investment and savings decisions. The study rests on the premise that individuals' saving-investment behavior reflects a complex of factors. It is an attempt to assess the relative weight of tax considerations for individuals in varying income, wealth, age, and family circumstances.

Miller's analysis focuses on four principal

kinds of behavior for which he must construct measures out of the mass of data being accumulated. These concern willingness to invest in income-earning assets, the relative rates of growth of investment in various types of assets, particularly gain-laden asset holdings and those in which gains are absent or insignificant, risk assumption versus risk aversion in investment behavior, and the extent of gain realization relative to size of the total portfolio and the amount of gains and losses accrued.

In so elaborate an undertaking, data problems are to be anticipated. In this case, these anticipations have been abundantly realized. Nevertheless, substantial progress has been made to date. The basic income tax file has been assembled and conveyed to magnetic tape. Interviews in depth of a sizable subsample of the individuals included in the basic file were conducted. The main task remaining is to collate the interview and Social Security data with the tax file data and to construct the investment portfolios of the individuals in the file whose tax returns or interview responses indicate their ownership of capital assets. This is a substantial chore, the successful completion of which should make possible a more definitive analysis of the effects of capital gains taxation on investment than any inquiry heretofore undertaken. In the interim, Miller has prepared an introductory chapter which presents the theoretical outlines of his analysis and the basic properties of the econometric model he proposes to use.

SUMMARY REPORT

Earlier I mentioned a summary volume which I am preparing, aimed at providing an overview of the impact of major features of the tax structure on growth processes. An introductory chapter delineating the major themes of our study is to be followed by a chapter describing and discussing the changes which have occurred in the U. S. tax system since the turn of the century—more precisely, since the end of the first decade of the century. It

is easy to lose sight of the fact that in the space of roughly fifty years enormous changes have occurred in both the structure of the federal revenue system and its relative weight on the economy. These changes may be presumed to have effected major alterations in the institutional framework of the economy, which, in turn, may very well have influenced the pace and character of economic development. This chapter will, therefore, examine some of the major trends in the nation's economic development, including various measures of the changing role of public finance, major sector growth rates, factor shares of national income, and various broad saving and investment patterns. The objective is to seek plausible associations between significant changes in the public financial system and substantial shifts in the nature or rate of economic development rather than to establish, in any rigorous formulation, a causal relationship between basic fiscal structure changes and basic movements in the economy.

The next several chapters will be devoted to examination of the possible influence of various features of the tax system on a number of types of growth-generating behavior. One chapter will focus on the impact of taxation on corporate saving and investment, and will treat such questions as (1) the significance of alternative views on the incidence of corporate income taxation for the size of the corporate sector and its growth; (2) various tax factors in corporate saving, including the treatment of dividend distributions, the interplay of corporate, individual, and capital gains tax rates on corporate distribution policies, and capital consumption allowances; and (3) tax factors bearing on corporate investment, including depreciation and other capital consumption allowances and loss offsets and carry-overs. The Hall and Stanback studies clearly will figure heavily as resources for this discussion. Another chapter will afford similar treatment to personal saving and investment decision-making, with emphasis on the influence of the graduated rate structure, the differential treatment of capital

gains and losses, and the adequacy of the income averaging provisions for offsetting the bias against risk assumption inherent in rate graduation. Here the Kahn and Miller studies will be major inputs. The influence of alternative modes of taxation on the extent and character of personal effort will command another chapter, and Holland's investigation will be heavily drawn upon for this essay. Tax considerations bearing on education and training will also be examined. A chapter will be given over to tax influences on research, development, and innovational activity.

These questions have been increasingly the subject of research in recent years, and I hope to make effective use of the results of a wide range of research efforts in addition to ours.

LOOKING AHEAD

Though we still have a heavy load of work to be completed, we are beginning to give some thought to the kinds of projects, small and large, to which we might turn when our present undertakings are completed.

It would be useful, for example, to survey the response to the depreciation guidelines promulgated by the Treasury Department in Revenue Procedure 62-21 in 1962 and to examine the operation of the reserve ratio test. A similar survey of the investment tax credit is warranted. The operation of the interest equalization tax should be carefully examined. It might be worthwhile to attempt to measure the impact of the sumptuary taxes—the excises on liquor and tobacco products—against the criteria customarily adduced in discussing major elements of the revenue system. The prospects of a long-range military involvement by the United States in Viet Nam have focused attention on alternative tax increase measures, including the possibility of the imposition of an excess profits tax. Examination of industry experience under the Korean War excess profits tax and a simulation of the impact of a similar tax under present conditions would be highly informative.

Numerous issues continue to arise in the

field of state and local government finance. Empirical analysis should be directed toward identifying and measuring the sources of change in the fiscal capacity of these governments.

Although subsidy devices of one form or another have always been a hallmark of federal finance, there has been relatively little recent investigation of these programs. A systematic statistical examination of the history, operation, and effects of governmental subsidies would be a useful addition to knowledge about the performance of the public financial system.

The growth of so-called welfare expenditures has been an important feature of U. S. public finance in the last several decades. Systematic delineation and measurement of these programs and their changing role in the economy would be highly desirable.

This inventory does not exhaust all of the possible subjects of future research efforts by the Bureau in the general area of fiscal studies. It should suffice, however, to indicate that there is much important work yet to be done.

NORMAN B. TURE