WORLD ECONOMIC SURVEY 1959

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EXPLANATORY NOTES

The following symbols have been used in the tables throughout the report:

Three dots (...) indicate that data are not available or are not separately reported

A dash (—) indicates that the amount is nil or negligible

A blank in a table indicates that the item is not applicable

A minus sign (–) indicates a deficit or decrease, except as indicated

A full stop (.) is used to indicate decimals

A comma (,) is used to distinguish thousands and millions

A slash (/) indicates a crop year or financial year, e.g., 1955/56

Use of a hyphen (-) between dates representing years, e.g., 1953-1955, signifies the full period involved, including the beginning and end years.

References to "tons" indicate metric tons, and to "dollars" United States dollars, unless otherwise stated.

The term "billion" signifies a thousand million.

Details and percentages in tables do not necessarily add to totals, because of rounding.

Certain abbreviations have been used: EEC for European Economic Community; EFTA for European Free Trade Association; GATT for General Agreement on Tariffs and Trade; IBRD for International Bank for Reconstruction and Development; IFC for International Finance Corporation; IMF for International Monetary Fund; OEEC for Organisation for European Economic Co-operation; UNRRA for United Nations Relief and Rehabilitation Administration. "Rhodesia and Nyasaland" stands for Federation of Rhodesia and Nyasaland; UAR stands for the United Arab Republic.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

TABLE OF CONTENTS

List of Tables

Part I

Investment trends and policies in the nineteen fifties

Part II

Current economic developments

4. Recent trends in industrial countries

List of Charts

INTRODUCTION

Introduction

OBJECTIVES AND POLICIES FOR ECONOMIC GROWTH

The decade of the nineteen sixties opened on a hopeful economic note. As reviewed in part II of the present *Survey*, the year 1959 witnessed new peaks in world production and incomes, following upon the recovery from the 1957/58 recession in the United States and from the cessation of growth in 1958 in western Europe. The upturn in industrial activity strengthened the markets for a number of primary commodities, thereby providing more favourable external conditions for financing the imports of capital goods essential to the continuation of economic development in the less developed countries. In the centrally planned economies, the rate of expansion of output continued virtually unchanged from the high levels of recent years, though the progress in agricultural production in relation to long-term objectives still lagged significantly behind that of industry, so that prospects for consumption in 1960 are less favourable than for investment.

In the industrial countries expectations at the beginning of the year were among the most optimistic of recent years, but they have been gradually revised downwards in the course of the first quarter, as earlier prospects for an extraordinary boom in the automobile and related industries in the United States failed to materialize and as a number of western European countries were once again obliged to impose tighter monetary policies to cope with developing inflationary tendencies. At the time of writing in the beginning of the second quarter of 1960, the prospects were still for a record year in 1960 but they were not so favourable as originally anticipated and the margin of uncertainty being attached to estimates of the duration of the current expansion was increasing.

The recovery of activity in the world economy at the close of the nineteen fifties provides a convenient basis for re-examining some of the issues relating to policies for economic growth in the nineteen sixties. Though the issues are far from settled, either in the economic literature or in official policy, it may be worth while to set forth the present stage of the debate.

The evolution of economic goals

The first major advance in the evolution of the economic goals of the world community was taken in relation to the achievement and maintenance of economic stability. Recognition of this responsibility has produced remarkable results with respect to those elements of economic stability that relate to global economic balance; the decade of the nineteen fifties has avoided the world-wide depression unemployment of the nineteen thirties as well as the intense inflationary pressures and the acute disequilibrium of the international balances of payments of the nineteen forties.

The objectives of economic stability

The goals of full employment, of price stability and of equilibrium in the balance of payments arose largely as responses to specific crises. The goal of employment derived from the widespread recognition of the destructive effect of the mass unemployment of the nineteen thirties and the growing realization that such unemployment was not inevitable under any economic system, but was, on the contrary, preventable by appropriate economic policy. In the leading industrial countries acceptance of this goal marked a major change-over in public policy thinking; the concept that government responsibility was largely limited to the passive role of enforcing the ground rules under which the private economy functions evolved into one assigning to government an active role in the maintenance of the nation's economic health. The concept of public responsibility was enlarged not only to embrace policies for the maintenance of employment but also to include a host of institutional measures to promote the social and economic welfare of the community. This period of the nineteen thirties witnessed the development of such programmes as social security and unemployment insurance and major financial and fiscal reforms, which have been of importance not only as ends in themselves but also as built-in stabilizers of economies based on private enterprise.

The evolution of the concept of government responsibility went hand-in-hand with a growing understanding of the economic forces operating in a private enterprise economy. The main body of economic analysis was expanded to include not only the theory of prices, resource allocation and distribution of income—where the main emphasis had been placed for two generations or more—but also the determinants of the total level of economic

activity; the concepts of propensities to save and to invest were added alongside those of marginal cost and marginal utility to the economist's basic tool-kit.

The study of the determinants of income and employment initially provoked the most violent debate, not only in the class-room, the professional journals and the daily newspapers, but also in the social and political arena. The passage of time, however, has produced such a degree of agreement that even what were once most controversial concepts have now become commonplace. Today everyone agrees that the ability of the market to generate sufficient effective demand for full employment cannot always be taken for granted, but that positive government policy may be necessary to achieve it and to maintain it once it has been achieved. Were all income generated exclusively in the production of consumption goods and used solely for the purchase of such goods there would never be a problem of effective demand falling short of the ability to produce. With part of income being saved, however, or devoted to government revenue or to imports, while on the other hand income is also fed by investment expenditure, government expenditure and exports, it is clear that a balance between income and expenditure may at times be struck at levels falling short of full employment. If that should occur, positive government policy would be necessary to expand effective demand, either directly by government purchases of goods and services or indirectly through policies designed to increase private outlays to the point where the total becomes adequate for full employment. Whatever differences may yet remain over the manner in which various factors bear on effective demand or over the nature and timing of specific policies, there seems no longer to be any fundamental disagreement in respect to the role of effective demand as a determinant of the level of economic activity and employment.

That effective demand may not only fall below, but may also exceed, the level required for full employment was borne home forcefully during and immediately after the Second World War. Under the pressure of urgent military requirements, aggregate effective demand for goods and services expanded enormously in all countries engaged in the war. Despite truly remarkable increases in taxation in many countries, it proved impossible for government revenue to match the increasing government expenditure, and private income available for consumption was inflated by growing budget deficits. On the supply side, though production had increased initially under the impetus of expanding demand, it was progressively curtailed by the loss of manpower to the armies, destruction of plant and equipment, disruption of transportation, and agricultural devastation. Even the United States and Canada, which were not only spared the war destruction, but indeed succeeded in achieving an extraordinary expansion of total output, could not escape intense inflationary pressure.

The pressure of excess effective demand, moreover, did not end with the termination of the war. Despite drastic cutbacks in military expenditure, pressure continued high as governments and business embarked upon large programmes of investment to make good the devastation of war, to reconvert plant and equipment to civilian use, and to replenish depleted inventories, at the same time as consumers sought to make good the damage to their levels of living incurred during the war. The pressure of an abnormally swollen demand upon a productive capacity that, in many countries, had been gravely crippled, threw the entire world economy out of balance. World-wide inflation of prices and wages was accompanied by acute disequilibrium in the international balances of payments. An economically greatly strengthened North America became the net world supplier of food, fuel, raw materials and equipment to accelerate the reconstruction of the war-torn economies in Europe and Asia and to aid in the economic development of countries that had been spared the ravages of war. Though some countries were able to finance their foreign deficits by running down war-accumulated assets, it was principally owing to the very large-scale foreign aid granted by the United States, first through the United Nations Relief and Rehabilitation Administration (UNRRA) and then under the Marshall Plan, that the world was able to finance its huge deficits on external account. This aid was all the more striking in that the expansion of net exports added to an already inflated demand for domestic investment and consumption in the United States, necessitating a level of taxes sufficiently high to offset both government expenditure and the export balance. In the centrally planned economies, too, reconstruction was at first considerably facilitated by UNRRA aid; but with the developing political tensions it came to be based almost exclusively upon the domestic efforts within each country, assisted only by trade with the Soviet Union within the framework of bilateral trade agreements.

Next to the rehabilitation of the war-devastated countries, the most critical post-war task facing the world economy was clearly the elimination of the world-wide inflationary crisis reflected in spiralling prices and acute disequilibrium on international account. On the supply side, this called for the recovery and expansion of industrial and agricultural output through a growing rate of investment, advances in technology and a rising trend in productivity; the upward trend in supplies made it increasingly possible to satisfy and liquidate the accumulated backlogs of demand which had been at the root of the inflationary pressures. On the demand side, top priority had to be given to a policy of fiscal and monetary restraint, though this was reinforced in some instances by direct controls on certain forms of investment. In the advanced industrial countries tax rates were generally kept sufficiently high to yield budgetary surpluses except for the period of Korean hostilities or during the brief periods of recession, while in

many of the under-developed countries reforms in tax structure and tax administration were instituted to finance economic development programmes. The excess liquidity inherited from the war was in some instances eliminated through currency reforms and in others absorbed through the upsurge in prices; and further expansion in the money supply was generally kept well within the limits of the rising trend in national product through a tight rein on the budget deficit and on the availability of credit to trade, industry and consumers.

Viewed on a world scale, the success in overcoming the crisis appears striking indeed. In a few short years galloping inflation disappeared as a world-wide process and became localized instead in a few countries; though prices continued to rise throughout the period, the rate of increase was sufficiently slower to necessitate the invention of the term "creeping inflation" to describe the new phenomenon. The achievement in domestic stability was paralleled, albeit with some time lag, in respect to international disequilibrium; though controls continued in effect much longer in foreign trade than in domestic industry and though the world has continued to rely on substantial non-commercial payments of the United States to replenish its foreign exchange reserves, acute international disequilibrium has ceased for many years to be an attribute of the world economy. Like internal inflation it is now acute only in a limited number of countries—though, as may be seen from developments in the United States following the 1957/58 recession, not even the economically most powerful country may be immune from sporadic attacks of external imbalance.

THE OBJECTIVES OF ECONOMIC GROWTH

Since goals of employment, of price stability and of equilibrium in the balance of payments arose primarily as responses to specific crises, it is not surprising that they were initially conceived in essentially static terms. The goal of full employment was designed to lift effective demand during a depression to the level required for the full utilization of existing resources, while the goal of price stability was aimed at preventing the pressure of excess effective demand against the available volume of productive resources during the post-war inflation. The goal of equilibrium in the balance of payments was viewed as a natural by-product of the achievement of a balance between aggregate effective demand and existing productive capacity in all countries, provided only that price levels between countries were kept in proper relation to one another by means of appropriate exchange rates.

The reinterpretation of the objective of full employment under the United Nations Charter so as to embrace the goal of economic growth marks a second fundamental change in public policy thinking. In the developed countries it substituted a dynamic goal of expansion for a static goal of avoidance of depression. In the under-developed parts of the world, it provided for the first time in history a vision of eventual escape from mass poverty. Increasingly it has become apparent that the realization of the goal of economic growth may render manageable the dominant economic problems, both national and international, which in a stationary economy might produce only conflict and frustration. The pressure of low income groups for economic protection, whether in the form of minimum wages or social security; the striving of all income groups for higher shares of the national income; the requirements of government for increasing revenues to meet the expanding claims on public services; and the demand of a growing population for rising levels of consumption in the face of a need to devote increasing resources to capital formation —such problems can be appropriately dealt with only if placed in the framework of an expanding economy.

Viewed in historical perspective, the record in the nineteen fifties of economic growth, like that of economic stability, appears uncommonly good. In the industrial countries the rates exceed those of the inter-war years and in many instances—though with some striking exceptions—they are above the average of the nineteen twenties. In much of the world's under-developed regions, though average levels of living still remain dangerously low, a serious beginning towards self-sustaining growth has been recorded. In the group of centrally planned economies, where levels of living are as yet well below those of the advanced industrial countries, post-war trends in production have accelerated sufficiently to produce some narrowing of the gap in relative, if not yet always in absolute, terms.

It is not within the scope of this *Survey* to analyse the determinants of economic growth; its roots lie as much in the social, cultural and political environment as in the purely economic sphere. Even in the domain conventionally designated as economic, the interrelationships between factors are so complex that it is difficult to disentangle cause from effect, let alone to measure the relative influences of particular factors. The ability of the economy to produce a surplus over current needs and to utilize this surplus effectively for financing the required capital formation and obtaining the necessary capital goods, the availability of a growing labour force with appropriate training, discipline and skills capable of utilizing the stock of productive equipment, the development of public and private leadership and policies for the effective organization and administration of a continuously expanding level of economic activity, the allocation of productive resources to research and innovation for the continuing improvement of the level of technology, and the expansion of markets to absorb the growing volume of goods that the economy becomes capable of producing—all of these factors constantly act and react upon one another as well as upon the rate of growth of the national product. Economists are as yet far from agreed as to which of these factors may be the

most strategic element for transposing a stagnant economy into a developing one. Where, however, development has become self-sustaining and the general social and cultural environment is reasonably favourable, there can be little question that the rate of capital formation is among the most strategic variables affecting the rate of economic growth. Other things being equal, the rate of growth of output per capita will depend in large part upon the rate of growth of the productive equipment placed at the disposal of the labour force.

As will be seen in chapter 1, there is a high correlation among industrial countries between the share of the national product devoted to capital formation during the nineteen fifties and the average annual rate of growth of output. The correlation is, of course, far from perfect, since other factors, including the rate of growth of the labour force, the rate of utilization of productive capacity, the composition of output and of capital formation, and the rate of advance in technology, also exert a significant influence upon the rate of growth. The important influence of the share of capital formation is, nevertheless, clearly evident.

Though the objective of economic growth now dominates public policy thinking in all countries, in almost none of the advanced industrial countries has this objective been defined in terms of a comprehensive policy for growth. In part this stems from a tendency to identify long-term economic policy with economic planning, which, it is feared, may endanger the system of private enterprise. As is evident, however, from the experience of a number of industrial countries, most notably France, Italy and Japan, even concrete long-term plans for economic growth need not carry any connotation of "controls"; they may instead serve a highly useful purpose in the context of a private enterprise economy in providing a comprehensive framework for the harmonization of economic policy. The formulation of a conscious policy for long-term economic growth need not involve any expansion of the scope of government responsibility now exercised in a private enterprise economy. In all economies governments perforce shape the rate of economic growth both by influencing the general environment within which the economy operates and more specifically by the increasing weight of government in the field of investment, whether it be in the form of direct public investment or in the form of fiscal, monetary and price policies affecting private investment. The formulation of a long-term policy for economic growth would not necessarily expand the scope of responsibilities at present being exercised by governments but would only provide a comprehensive and consistent framework for discharging them more efficiently.

Concern is also frequently expressed that a long-term policy for growth may lead to excessive rigidity in the economy owing to difficulties of forecasting changing needs and capabilities. Granted, however, that no one can count on the gift of prophecy, it may still be true that a long-term perspective, provided that it is approached in a pragmatic fashion and is constantly revised in the light of new experience, may contribute not only to a higher degree of consistency of economic policy but also to a greater degree of adaptability of the economic structure. Over the shorter term all governments recognize, albeit to a varying degree, the usefulness of the budget as an instrument in the formulation of a rational and consistent policy for economic stability. The planning of such annual budgets within the perspective of a longer-term framework, particularly if that perspective is periodically revised in the light of current trends, should similarly constitute a useful tool for the formulation of a consistent and flexible policy for economic growth.

Perhaps one of the weightiest objections to the formulation of a long-term policy for economic growth stems from concern that such a policy may prove to be overambitious in taxing productive capacity beyond its capabilities, thereby generating self-defeating inflationary pressures. Though there is as yet admittedly wide disagreement on the nature of the interrelationship between the objectives of economic growth and stability, there would seem, however, to be no inherent reason why a long-term policy for economic growth should be automatically biased in favour of inflation. Even full employment does not necessarily set an absolute upper limit upon the rate of economic growth that is attainable without inflationary pressure; rates of growth may be retarded or accelerated by government policy affecting the allocation of resources as between consumption and investment. Clearly a sound economic policy calls for the achievement and maintenance of both growth and stability; the objective of an optimum rate of economic growth is no more consistent with an excess than with a deficiency of aggregate effective demand in relation to supply. It would be wrong to assume, however, that the rate of growth cannot be accelerated even at full employment except by giving up all concern for economic stability.

GROWTH OBJECTIVES FOR UNDER-DEVELOPED COUNTRIES

The problem of formulating a long-term policy for economic growth in operationally meaningful terms assumes a far higher degree of importance in the underdeveloped than in the developed countries. Where the social and institutional framework of the economy is appropriately adapted, and market forces are sufficiently powerful, to provide the requisites for a self-sustaining rate of growth, governments may question the desirability of more than marginal intervention to influence either the rate or pattern of growth. This policy has proved less feasible, however, in most underdeveloped countries, where the problem is to create the conditions of social and economic progress for which market forces alone have thus far been inade-

quate. Here, as is reviewed in chapter 2 below, a more active government role in formulating economic goals has been necessary to overcome the influence of market forces making for stagnation. This confronts the world community with the striking paradox that it is the governments of the less developed countries, where the problems are far more complex and the tools for dealing with them far less potent, that may be obliged to assume the more active role in the promotion of growth.

The first prerequisite for economic development is, of course, the availability of a surplus over current consumption needs that can be devoted to the promotion of economic development. Even assuming such a margin is or can be made available, however, the problems of utilizing this margin effectively for increasing the productive capacity of the economy are manifold. Indeed, these problems may be more formidable than that of providing the surplus over consumption, since, where resources are idle, their effective absorption into productive use can itself provide the necessary margin over consumption.

The problems arise not only at the economic but also at the social and institutional levels. Where the structure of production, the state of technology, the social and economic institutions, and the health, education and training of the population may as yet be far from adequately adapted to the requirements for rapid growth, policies defined in purely economic terms may have relatively little meaning. Where the full utilization and development of resources are limited by adverse environmental factors, economic programmes need to be linked with appropriate social objectives if they are to be rendered operationally meaningful. In the absence of appropriate policies embracing essential institutional reforms and basic improvement in health, education and social welfare, economic goals of employment, growth and stability may be largely frustrated.

Even in the purely economic sphere, the problem of formulating national objectives is an exceedingly difficult one for under-developed countries. Basically, the difficulty stems from the compartmentalized, relatively pluralistic character of the typical economy; the degree of integration may well be lower between the major economic sectors within an under-developed country than between countries within the world economy. In the highly diversified economy of an advanced industrial country, with capital, entrepreneurship and labour all highly mobile, economic growth, no matter how rapid its rate, is essentially a gradual process. Where no abrupt changes are involved in the structure of production, national economic goals may have meaning even when defined in global terms. Such marginal adjustments as may be required in the allocation of resources in the private economic sector as between individual branches of economic activity, whether they relate to manpower, to raw materials or to plant and equipment, may, in accordance with a country's institutions and traditions, be left largely, even if not exclusively, to market forces. As long as the pricing system provides an effective tool for the co-ordination of economic activity, national economic objectives may serve as meaningful guide-lines for policy even when formulated in global terms.

These conditions are less likely to be met, however, in the typical economy of an under-developed country. Here economic growth involves a process of revolutionary rather than gradual change. The problem of economic development is not merely one of inducing marginal shifts in the allocation of resources among existing branches of economic activity; it is rather one of introducing large-scale fundamental changes into the economic structure so as to adapt it to the requirements of economic growth. In the absence of appropriate policies for the development of the overhead capital in transport, communications and public utilities that is requisite for economic growth, global goals of saving and investment may be of little significance. The inadequacy of the infrastructure may be a more immediate and more serious limitation upon the utilization and development of resources than is the low rate of saving; in the absence of appropriate preconditions for investment, an increase in the rate of saving may lead not to an increase in the rate of investment in productive equipment but merely to an unwanted accumulation of inventories or to an otherwise avoidable decline in the level of production.

The problem is not limited, however, to the development of an adequate infrastructure. It extends also to the development of a proper balance between the main sectors of private economic activity. The distribution of total output as between industries, it is self-evident, must be related in significant measure to the pattern of demand; indeed the two can differ only to the extent that the distribution of supplies may be modified through foreign trade. In so far as an increase in the rate of economic growth entails a long-term shift in the pattern of demand, it must be accompanied by a corresponding shift in supplies of commodities if the rate of growth is not to be inhibited by intolerable shortages in some areas and excess supplies or idle capacity in others. Except to the extent to which supplies may be affected by imports, this in turn involves a corresponding shift in the structure of production. The change in pattern will, of course, vary as between countries in a given period, as well as within a country over different periods of time. As concerns consumption, the major impact of the increase in per capita income accompanying economic growth is likely to be felt initially in outlays on essential foods; clearly economic development cannot proceed very far unless it is accompanied by a sufficient increase in production of the basic foods not only to supply the needs of the agricultural producers themselves but to provide the necessary surplus

for the labour force engaged in the rest of the economy. When once the basic needs in food have been met, however, consumer demand for non-staple foods as well as for industrial consumer goods is likely to increase at a higher rate than demand for staple foods. This is already likely to involve a more rapid increase in supplies of industry than of agriculture, heavily weighted as the latter must be by staple foods.

More basic, however, than the shift in demand among consumption goods is the necessary shift in expenditure from consumption to investment. Economic development of under-developed countries can become self-sustaining only through an appropriate increase in the proportion of income devoted to investment. Again, except for imports, this will necessitate a corresponding increase in the production of capital goods not only in absolute terms but also in relation to total output. In turn this will require a more rapid increase in the capacity to supply capital goods than in the capacity to supply consumer goods; and—once more abstracting from imports—this will involve a higher rate of increase in investment in industries producing capital goods than in industries producing consumer goods. Unless the appropriate shifts in the composition of supplies can be brought about, economic growth may be frustrated not by the inability to generate sufficient saving to finance the required rate of investment, but rather by the rigidity of the structure of production making it impossible to secure the supplies of the capital goods required for the investment.

Where capital and entrepreneurship are scarce and relatively immobile and where the mobility of labour is limited by inadequacy of productive capacity, the balance between the major sectors of economic activity required for economic growth and stability cannot be taken for granted. Remarkably efficient as is the pricing system in maintaining equilibrium "in the small", in relation to marginal shifts of demand and supply for individual commodities, it may not be sufficient by itself to maintain equilibrium "in the large", relating to gross changes in balance between the main sectors of economic activity. Not even the developed countries have found it possible to rely exclusively upon the pricing mechanism to achieve major changes in balance between the main sectors of the economy; they have all found it necessary to influence the balance by means of extensive legislation, especially in agriculture, transport and public utilities. If this has been true in countries with highly mobile resources and with a scientific technology that is perhaps as advanced in agriculture as in manufacturing, how much more difficult must be the problem of achieving a proper balance between the main economic sectors in under-developed countries where technology is frequently as primitive in industry as in agriculture, and where the mobility of resources is severely limited both by the inadequacy of productive capacity and by a host of social and cultural inhibitions.

As noted above, the composition of supplies may, of course, be modified through imports rather than through changes in production. This, however, does not remove the problem of the rigidity of the economic structure but only places it on another plane. Imports cannot be obtained free of charge; they must be paid for by drawing down reserves, by capital transfers or by exports of goods and services. The first two possibilities are of course limited, and capital transfers are, moreover, also dependent upon foreign decisions. Over the longer term, therefore, chief reliance must inevitably be placed on an expansion of exports to pay for increased import requirements. Here a twofold problem arises. The first involves a shift in the composition of output from production for domestic use to production for exports. For some countries with ample export capacity this may be relatively easy to achieve; for others, however, in which expansion of exports would itself necessitate considerable investment, such a shift may be just as difficult as, if not more so than, an expansion in the output of capital goods industries.

A second element, however, enters into the problem. An increase in exports depends not only upon a country's ability to expand its production of export goods but also upon its ability to sell them; whereas the increase in production may be determined exclusively at home, the increase in sales is dependent in addition upon decisions abroad. Where export goods face a rapidly rising world market, such as has been true, for instance, of some minerals, there may be no problem of financing expanded import requirements through higher output of exports. As was shown at length in the *World Economic Survey, 1958*,[1] however, world demand for most primary products upon which under-developed countries continue to depend has tended to lag behind the rate of growth of production in the developed countries. It has also tended to fluctuate far more violently than has the rate of total economic activity in the industrial countries. The solution to the problem of increasing export earnings cannot therefore depend exclusively on policies for expansion of output of export goods in the under-developed countries. It must depend also upon policies with respect to imports of goods in the developed countries. In so far as the industrially advanced countries can liberalize their imports of primary products and can contribute to a greater measure of stability in such trade, or alternatively, contribute to some compensation against such fluctuations, and—since even such measures may not suffice to solve commodity trade problems—in so far as they can adjust the structure of their own industrial production so as to facilitate imports of manufactured goods from newly developing countries, they can materially contribute to economic development of under-developed countries through an expansion of trade. In so far, however, as this trade fails to grow rapidly enough, the under-developed coun-

[1] United Nations, *World Economic Survey, 1958* (sales number: 59.II.C.1).

tries must either depend upon foreign aid to balance their external accounts, or else they must adapt their structure of production so as to reduce their import requirements. This, it may be noted, does not involve a reduction in the absolute level of imports but only a check on their rate of growth so that it will not exceed the possible rate of growth in exports. Otherwise, once again, investment may be limited not by a deficiency of the rate of saving but by inability to secure the supplies of capital goods upon which depends the rate of economic growth.

It follows that in an under-developed country the objective of economic growth, if it is to have operational meaning, must be accompanied by policies for achieving an appropriate dynamic balance between the rates of change of output in the main sectors of economic activity—between agriculture and industry, between consumer goods industries and capital goods industries, and above all between exports and imports. Given the rigidity of the economic structure in under-developed countries and the slow rate of capital formation which inhibits the mobility of resources, global targets for saving and investment can be meaningful only as part of a broader set of objectives designed to achieve the necessary balance in rates of growth of the main sectors of economic activity without which rapid economic development is impossible.

THE GOALS FOR CENTRALLY PLANNED ECONOMIES

The problems of formulation of meaningful economic goals come into sharpest relief in the group of countries whose economies are directed entirely on the basis of a central economic plan. Many of the problems are, of course, peculiar to the institutional system under which the plan is formulated and executed in these countries, but many others are rooted in economic considerations common to all countries regardless of their political and social institutions. Indeed, since the plans of these countries are designed as tools for the organization and administration of the economy rather than only as general guide-lines for broad economic policy, it is not surprising that the problems of achieving an appropriate dynamic balance between the main sectors of economic activity should have come into greatest prominence in relation to these countries rather than to those based on private enterprise.

The problem of achieving an appropriate balance between major sectors of the economy raises more than purely technical considerations capable of solution by engineering calculations alone; indeed, it goes to the very heart of the social and political criteria for choice between alternative economic policies.

If the optimum rate of growth of national income and production could be achieved by employing resources which have no alternative use there would be no problem of economic choice. But while this may be true of some resources, it is not true of all. To the extent to which resources may be used either for current consumption or for increasing the capacity to produce, governments are faced with the problem of choosing the preferred allocation of resources as between these alternative uses. In the absence of foreign aid, this hinges upon the extent to which the proportion of resources which the economy is able to save can be increased. If the saving rate remains unchanged, the output of consumption and investment goods will have to be increased in equal proportions and in turn this will require an equi-proportionate allocation of investment to both the investment goods and consumer goods sectors. Naturally this will tend to slow down the rate of growth of income; and where population is growing rapidly it may not even be possible to achieve any increase in per capita income whatsoever under such circumstances. If, however, the proportion of income which the economy is able to save is increased, investment can rise faster than consumption, and in turn this will mean a higher rate of increase in the output of, and a proportionately larger allocation of investment resources to, the investment goods sector than the consumer goods sector.

It should be noted that the objective of achieving a high rate of growth of income is not necessarily the same as that of maximizing the current level of income. Resources used in the investment goods sector to increase the rate of growth might, for instance, have a higher output yield in the consumer goods sector—the output per unit of capital might be higher in industries producing consumer goods than in those producing investment goods. In that case, not only current consumption but even current income might be reduced below otherwise attainable levels. Nevertheless, governments might consider some sacrifice of current income worth while, depending upon the magnitude of the resulting increment thus made possible in future income and consumption.

In similar fashion it may be noted that an objective of accelerating the rate of economic growth is not necessarily the same as maximizing the current rate of economic growth. If the investment goods sector is divided into industries producing equipment for consumer goods and those producing equipment for investment goods, it may be found for instance that the output per unit of resources is higher in the first group than in the second. Allocation of resources to the second group might thus reduce not only the current level of income but even the current rate of growth in income below otherwise attainable levels. Nevertheless governments may consider this sacrifice of current income and current rate of growth worth while, providing that the resulting acceleration of the future rate of growth thus made possible is sufficiently high. This consideration is generally recognized even in private enterprise economies in the concentration of investment at early stages

of development in the economic infrastructure, particularly in health and education, where, though the yield in terms of current output and current rates of growth may be relatively low, the yield in terms of acceleration of future rates of growth may be the highest of any sector of the economy. In the centrally planned economies, however, this has been the overriding consideration in the allocation of investment to heavy industry.

Until very recently the basic objective of the central economic plan in these countries was to achieve the maximum acceleration of the rate of economic growth. This meant devoting all resources above the barest subsistence minimum to investment rather than to consumption. Not only was the proportion of income devoted to consumption lowered, but even the absolute level of consumption was reduced in some instances in order to provide the maximum margin for investment. Equilibrium in the consumer goods markets was achieved by means of very heavy turnover taxes levied on the sale of consumption goods, sufficient to raise their prices in relation to wages paid out so as to equate demand and supply.

The objective of achieving the maximum acceleration of the rate of economic growth was pursued even if it meant sacrificing not only some of the potential for current levels of consumption but also some of the potential for the current rate of growth. Thus the chief concentration of investment was in heavy industry to provide the base for accelerating the rate of growth of income, despite the higher capital costs per unit of output in heavy industry. Indeed, as is explained at some length in chapter 3, initially the central plan was not formulated in a national income framework. Instead it was prepared in terms of goals for investment in "leading industries"—such as energy, communications, steel and chemicals—which were deemed essential for maximum acceleration of economic growth, with investment in complementary industries calculated on the basis of technical considerations, while both investment and output in consumer goods industries were to some extent determined on a residual basis.

As a result of concentration on leading industries, the rate of growth of national output was lifted to a comparatively high level in the centrally planned economies. This method of planning has, however, proved increasingly deficient in major respects, particularly in the industrially more advanced of these countries. It has gradually become clear that failure to formulate the economic plan in a comprehensive national income framework has frequently involved an unnecessary sacrifice of output in some areas, while capacity available elsewhere could not be utilized fully owing to inability to achieve the required increases in capacity in complementary industries. The comparative neglect of consumption in relation to investment, and especially of agriculture in relation to industry, has also proved increasingly costly. The resulting imbalance has often led to bottlenecks in production and to inflationary pressures, reflected either in shortages in supply in relation to incomes or in rising prices in relation to wages. The impact of this imbalance on productive efficiency was thus reinforced by its adverse influence on labour incentives in industry and agriculture.

In more recent years, as is examined in chapter 3, methods of planning have been substantially revised. Both in the Union of Soviet Socialist Republics and in eastern Europe, greater reliance is being placed on planning in a framework of national income, and increased weight is being attached to consumption in relation to investment, with the emphasis shifting from maximum to optimum rates of growth. At the same time, increasing attention is being devoted to improving the efficiency of the use of resources not only within industries but also between major sectors of the national economy and—to a more limited extent—even between countries. Partly in response to internal social pressures, partly on grounds of the need for greater efficiency and partly also perhaps because of the increase in supply of trained personnel, a tendency has also been set in motion in all these countries for a degree of decentralization of the economic plan. The number of items in the central plan is being reduced, making possible a higher degree of integration of the elements of the plan, while more and more of the detailed segments of economic activity are being transferred to regional and local responsibility.

Reconciling economic growth and stability

The acceptance of economic growth as the fundamental objective of the world community has led to a re-examination of problems of economic stability in relation to growth rather than in the static context in which they had been previously conceived. As is inevitable with respect to any major social issue, the debate has been wide-spread and intense, both in the economic literature and in the public forum. In its initial stages the debate has tended to focus on, and therefore perhaps even to exaggerate, the differences between contending views; in the light, however, of experience with the earlier and more violent debate centring around the analysis of depression unemployment, it may be confidently anticipated that the current debate, too, will contribute towards clarification of issues and ultimate reconciliation of opposing views.

The subject has often been viewed as if the issue were between proponents of growth without regard to stability and proponents of stability without regard to

growth. This highly over-simplified view, let it be said at the outset, distorts the issue. Everyone agrees on economic growth and stability as joint economic objectives of the world community. On the one hand, there is complete agreement that economic stagnation or large-scale unemployment is not an acceptable cost to pay for price stability or equilibrium in the balance of payments; there seems to be no difference of opinion over the need for compensatory fiscal and monetary policy to offset a recession in economic activity. On the other hand, it bears repeating that there is also no disagreement on the evils of large-scale inflation, whether open or suppressed, and that no one would today recommend large-scale inflation as a means for promoting economic growth. Though some economists have favoured gently rising prices as an incentive for capital formation, they too have emphasized that large-scale inflation would soon choke off any economic growth to which it might give birth. Furthermore, just as there is no disagreement on the essential role of monetary and fiscal policy in expanding effective demand in case it is inadequate, so there is no disagreement on their essential role in restraining demand if it is excessive.

The debate is thus not over the desirability of the objectives of economic growth and stability, but only over the interrelationships between them and over the policies necessary to achieve them. Here again, it may help to clear up confusion to note that the issue is not whether the objectives of growth and stability are at all reconcilable; the issue is rather whether there may ever be a need for reconciling them. No one maintains that growth and stability are in principle irreconcilable and that governments must inevitably choose between them; everyone believes that both objectives can and should be attained within all countries, whatever their economic institutions may be and regardless of the stage of their economic development. The question is only whether there is any possibility of conflict between the goals of growth and stability that may call for special measures to reconcile them, or whether price inflation and the related external imbalance can always be met by monetary and fiscal restraints without any danger to economic growth. The solution to this question in turn hinges upon the analysis of the possible sources of inflation.

Until recently the prevailing view seems to have been based on the assumption that all inflation, large or small, galloping or creeping, must, ultimately, be due to excess demand. According to this view, there simply cannot be any conflict between the goals of price stability and economic growth. A cumulative rise in prices can only be the result of "too much money chasing too few goods" and it must therefore be regarded as a signal to the authorities to check the flow of money so as to keep it in line with the flow of goods. Such restraint cannot slow down the rate of economic growth, since it merely eliminates the excess flow of money that is responsible for the rise in prices, while leaving the total sufficient to absorb the aggregate supply of goods at stable prices. If, on the other hand, the flow of money should be left unchecked, the excess would not give rise to any additional production but would simply lead to cumulatively rising prices. Moreover, the rate of increase in prices would be bound to accelerate, with creeping inflation turning into galloping inflation, bringing in its train all of the well-known adverse effects on both short-term stability of output and long-run economic efficiency.

More recently, however, a consensus appears to be developing around the view that inflation is too complex a phenomenon to be fully embraced in the formula of "too much money chasing too few goods". The position which has been taken in recent editions of the *World Economic Survey* is that the pressure of excess aggregate demand upon productive capacity is only one possible source of inflation. A rising trend in prices and wages may also be generated by forces other than excess aggregate demand for goods and services, and its existence cannot therefore be taken in itself as evidence that the level of employment or the rate of economic growth has already reached a ceiling. Indeed, as was first emphasized by those opposed to monetary and fiscal expansion in the great depression of the nineteen thirties, it is not impossible for a price-wage spiral to be set in motion even in the midst of very high levels of unemployment.

It follows that however vital a role must be reserved to monetary and fiscal policy for the prevention of inflationary pressures that stem from excess demand, such policies may not always be sufficient to reconcile the objectives of economic stability and growth. In an under-developed country, as will be noted later, inflationary pressures may accompany economic growth not only as a result of excess demand stemming from budget deficits or unwise use of credit but also from rigidities inherent in its economic structure. Even in industrial countries, bottlenecks in supplies of key items—such as steel—may play a role in setting off inflationary pressures in the course of a cyclical upswing, but in such countries, where capacity can be readily expanded, they are less likely to be of longer-term significance. In these countries the more important non-monetary factor making for long-term inflationary pressure is related to the institutional forces affecting the determination of prices. In an economy in which prices are established by conventional markups over wages, in which wages are determined around the collective bargaining table, and in which farm prices are supported by national legislation, the conflicting pressures of labour, business and farmers for higher shares of the national income predominate in the determination of the price level. Over these factors, the monetary authorities cannot be expected to exert more than a marginal influence; unless a country is prepared to pay the price that may be required in output and employment in order to elimi-

nate such pressures, there simply may not be enough leeway for restraining them by means of monetary policy. Where the pressures can be dealt with directly by measures appropriate to them, price stability, it is true, may be preserved without loss of output and employment, and there need be no conflict between economic growth and stability. Failing such direct, non-monetary measures, however, a conflict between economic growth and price stability is possible: either the money supply must then be accommodated to the pressure for higher money incomes, or else some of the potential production and employment which the economy is otherwise capable of enjoying must be sacrificed.

The magnitude of the loss of potential output would naturally vary from country to country and from period to period, depending upon how the pressures of labour, management and farmers are influenced by the state of the market. This in turn may depend not so much on the absolute level of employment or even on the percentage of the labour force that is employed, as on the rate of change in that percentage. Even if it should be true, as many seem to believe, or hope, that a small decline in the percentage of employment from the relatively high levels prevailing in the post-war period would suffice to weaken the non-monetary pressures on prices, it must still be borne in mind that these pressures might well be renewed subsequently, after the level of activity had been stabilized and the percentage of employment had ceased to decline. Indeed, if a more significant recession should ever develop, the upward pressure on prices might well begin, as it did in the nineteen thirties, as soon as output and employment began to recover, even while unemployment still remained relatively high.

To state that, in the absence of direct measures to deal with the non-monetary pressures on prices, there may be a conflict between the goals of economic growth and price stability which cannot be effectively resolved by monetary policy, is in no way to minimize the dangers of large-scale inflation for economic growth, nor to belittle the essential role of monetary and fiscal restraints in curbing inflationary pressures that do arise from excess demand. Nor is this position intended to deny that economic growth is possible under conditions of falling prices. If, as in the oft-cited case of the closing twenty-five to thirty years of the nineteenth century in the United States, farm prices are permitted to drop in response to a revolutionary expansion of farm production, if wages remain stable owing to a steady stream of migration and to the absence of a significant trade-union movement, and if in this context industrial costs are sharply reduced by a technological revolution, then rapid economic growth may well be accompanied by declining prices. But if, as has been recently true in the industrial countries, collective bargaining and traditional wage patterns combine to produce money wage increases in excess of the average rate of advance in productivity, if industrial prices are fixed by conventional markups over costs, and if national policy calls for a substantial measure of protection for agricultural prices, a policy of monetary restraint upon demand may not suffice to stabilize prices without adverse effects on economic growth. Where the behaviour of prices tends to replace the availability of productive resources as the most relevant indicator of the potential for economic growth, the outcome is likely to be some bias towards excessive restraint of demand in economic policy.

It is a striking testimony to the strength of private demand in the post-war period that, despite a policy weighted in favour of general restraint, it has continued to grow at a significant rate, albeit, in many countries, a declining one. In part this may be due to the fact that the active restrictions have been largely concentrated in the monetary sphere where they have thus far been rather less inhibiting than had been feared. Indeed, in many instances monetary restraints have borne most heavily upon residential construction and consumer durables while expenditure on plant and equipment has been checked to a lesser degree and only after a considerable time lag. It may well be, therefore, that the slowing down of the rate of growth in the course of the nineteen fifties should be attributed not so much to the presence of monetary restraints as to the inadequacy of overall policy for the realization of the full potential of economic growth.

RECONCILING GROWTH AND STABILITY IN UNDER-DEVELOPED COUNTRIES

It will be apparent upon reflection that the rigidity of the economic structure of under-developed countries renders more difficult not only the formulation of their goals of economic growth *per se* but also the problem of reconciling these goals with those of economic stability.

The problem of inflation in under-developed countries is in any event an exceedingly complex one. The first difficulty—that of generating an adequate rate of saving to finance the expanded investment needed for economic development—is self-evident. Not even in the most advanced industrial countries has it proved easy to achieve a rapid increase in the proportion of income devoted to saving on the scale that is indispensable for economic development. Though in a number of countries of Latin America the rate has now been lifted to a level at which economic development can be self-sustaining, in the less developed countries of Asia and especially of Africa large increases in the proportion of income that is absorbed in investment are still necessary. The problem of providing adequate saving to finance investment cannot be avoided in under-developed countries, even where the investment may be brought about by employing resources that would otherwise be idle so that no curtailment in the total volume of consumption is necessary. Except where the work is without pay, as in community development projects, the increment in saving resulting from the additional income is likely to be small in relation to the increment in investment.

Most of the increased income is likely to add to the pressure of demand against the supply of consumption goods, and unless these too can be increased in line with the addition to investment, the result will be an inflationary gap at prevailing prices between the demand for and supply of consumption goods.

Not only is the problem of providing adequate saving to finance investment more difficult but also the danger of generating a cumulative price spiral from any initial inflationary impulse is likely to be greater in many under-developed countries. This may seem paradoxical in view of the fact that wage costs, which provide much of the momentum of the price-wage spiral in developed countries, are a much less important element of national income in under-developed countries. This is more than likely to be offset, however, by the greater sensitivity of prices to excess liquidity that is characteristic of many under-developed countries, reinforced in many instances by long histories of violent inflation.

The inflationary dangers stemming from the increase in the share of capital formation necessary for investment highlight the need for a vigorous fiscal and monetary policy as a major component of any sound policy for economic development. Yet monetary and fiscal policy is not the total answer to the problem of inflation in under-developed countries. In such countries, pressure of excess demand may also reflect the rigidity of the structure of production, rather than inadequate saving or excess liquidity. Inflationary pressure may arise not only because of an excess of total demand in relation to total supply but also because of bottlenecks in the supply of some key commodities. Shortages of energy, of an essential raw material or of a staple food may give rise to cumulative price increases long before the investment has placed any strain on productive resources generally or even on the availability of savings. Were there sufficient mobility of resources to eliminate the bottlenecks, the rate of saving and total productive capacity might well be adequate to finance a higher rate of investment and economic growth. But given the bottlenecks in key commodities, the resulting inflationary pressure may well be so intense as to prevent the full utilization and rapid development of the available resources.

The role of supply bottlenecks in inflationary pressure is not uncommon even in industrial countries. Bottlenecks in key commodities have been known to generate cumulative increases in prices in the midst of unemployment and under-utilization of productive capacity in the total economy. This was, for instance, a factor contributing to the rise in price level during the depression of the nineteen thirties; it was a factor contributing to the rise of prices in the United States in 1941/42 when output was being rapidly expanded but unemployment was still relatively high; and it was again a factor during the upswing in investment in a number of industrial countries in the 1955-1957 expansion. In such countries, however, excess demand is not likely to persist for long unless it applies to the economy as a whole; excess demand in individual sectors is likely to be eliminated through the pricing mechanism by a shift of resources from sectors where supply is excessive to those where it is inadequate. In under-developed countries, on the other hand, the economics of bottlenecks may be decisive even in long-term growth. Given the compartmentalization of output in the economy and the inadequacy of the rate of capital formation that is so essential for mobility of resources, it may not be possible for the pricing mechanism to meet the excess demand where it exists by means of the transfer of excessive resources from other sectors. In such circumstances, sectoral excess demand may persist indefinitely, even though productive resources that could otherwise be used are idle. Thus the inability to adapt the structure of production may prevent the economy from achieving the total production levels otherwise attainable from its available resources. The economy may be compelled to sacrifice output which it urgently needs and which it is fully capable of producing, only because the structure of production is too rigid to avoid bottlenecks in supply of key commodities. In an under-developed country, it thus appears, inflation is more than a problem of fiscal and monetary policy alone—it is nothing less than the problem of sound economic development.

Just as the rigidity of the economic structure is of major significance for the problem of inflation, so it is of the utmost importance for the balance of payments of under-developed countries.

Nothing that has been said heretofore should be taken to minimize the importance of pressures of excess demand for the balance of payments. That this was the basic source of disequilibrium in the international balance of payments in the early post-war years has already been emphasized. There is also no question that the pressure of excess demand, whether from budget deficits or from too liberal credit policies, has been a major factor in the balance of payments difficulties in one country or another and in one year or another throughout the post-war period. There can, of course, be no disagreement that keeping aggregate demand in balance with total productive capacity is a necessary condition for preserving a balance between export earnings and import requirements, without which the entire process of economic development must sooner or later grind to a halt. The question, however, is not whether monetary and fiscal measures are necessary, but whether they are also likely to be sufficient to preserve balance in the international accounts of the under-developed countries. On the one hand, given the rigidity of their economic structure and the low rate of accumulation of capital which keeps their productive resources highly immobile, resources released from domestic consumption through an increase in saving may not always be transferable to expand the output of their

Chapter 1

INVESTMENT TRENDS AND POLICIES IN THE INDUSTRIAL COUNTRIES

Factors in economic growth

The post-war period has witnessed a growing awareness among governments of the vital importance which their policies may have in influencing investment and—through investment—the rate of economic growth. It is true that there are many aspects of the relationship between capital formation and economic growth which are still far from clear, and it must be admitted that both theory and empirical research have lagged seriously in this field. Nevertheless governments in developed and under-developed countries alike are profoundly concerned with the factors which make for rapid economic growth in one country and a less satisfactory state of affairs in another, and are interested, in particular, in the role played by investment in this respect.

An examination of the past record of economic development, going back to the Industrial Revolution, and even earlier, indicates that the process of growth is a highly complex phenomenon in which the social, political, cultural and technological elements are at least as important as the economic. Nevertheless certain economic features appear to stand out in most cases. A fundamental precondition of economic growth appears invariably to have been the ability of agriculture to generate a marketable food surplus for the consumption of those engaged in the process of building up the capital stock—people who were not themselves directly producing consumer goods. This in turn had important implications for the prevailing system of agrarian organization—in general, the traditional system inherited from the past was ill adapted for the creation of an agricultural surplus. The capacity for growth thus depended to a considerable extent upon the degree of success achieved in modernizing forms of land tenure and techniques of cultivation.

Granted that agriculture was capable of yielding a growing surplus, an upsurge in the rate of economic development was normally associated with a marked stepping up of the rate of increase of population as well as of output per head. The advance in productivity in turn accompanied high rates of accumulation of capital and of technical progress, and rapid shifts of the labour force from low-productivity to high-productivity employment—particularly from agriculture to industry. In the newly settled areas, however, there was a period of considerable expansion in agriculture, which made it possible to supply part of the food required by the Old World as industrial development proceeded.

It is extremely difficult, in looking back upon these developments, to distinguish cause from effect—and still more so to indicate prime causes. The rapid expansion of population was partly a response to the fact that real income began to rise faster than the labour force, but the population "explosion" of the time was itself an element in the acceleration of economic growth, since an adequate supply of labour was required to man the new factories. Yet it would be wrong to suppose that population growth *per se* could invariably exert an inpendently favourable influence upon economic growth.

Similarly, the technical progress typified by the innovations of the Industrial Revolution undoubtedly played a major role in the development of high-productivity manufacturing; but technical progress itself embodies the response of ingenious minds to the economic dynamism of the day and cannot therefore be treated as an entirely independent element in growth any more than the population surge was. Thus the bunching of inventions during the latter part of the eighteenth century is not likely to have been accidental, but rather the outcome of a change in the economic and social environment which was favourable to technical progress and innovation.

That capital accumulation had a special part to play in the process of development does not seem to be in doubt. It was characteristic of the whole world before the Industrial Revolution, as it is of the under-developed countries at the present time, that the means of production employed were very primitive. The elaboration of more powerful and more refined productive techniques made it necessary to set aside a larger proportion of resources from current consumption for the purposes of building up capital than had been considered possible in the past.

Capital accumulation was as inseparably linked to the process of technical change as both were to the general economic and social climate of the time. The entrepreneur installing new fixed capital would not simply reproduce the equipment previously employed, but would set his technicians to work to improve and re-design, and to take advantage of any important advances in science. Inventions were called forth by the process of capital accumulation and in turn reacted upon that process through their effects on investment opportunities: thus investment and innovation yielded a joint product,

and the contribution of each could scarcely be distinguished from that of the other.

Economic progress depended on much more than the technology of power-driven machinery. Equally important were developments in the skill of the workers and in the resourcefulness and efficiency of organization and administration, which in turn depended upon the quality of education and technical training. The human factor in economic development was and is no less to be reckoned with than the material factors.

It will therefore be seen that, while capital accumulation is vital in the process of economic development, it is not the only factor. Capital must be combined with labour, and the adequacy of supply of labour, as well as its skill, stamina and morale are therefore crucial. Entrepreneurial and managerial skills are also required in full measure, as are technical creativity and dynamism. Moreover, the whole process requires a sympathetic political and social environment, possessed of sufficient elasticity and flexibility to permit adaptation to a rapid tempo of innovation and change.

If, despite the large variety of factors which contribute to economic development, rates of growth of per capita real income in various countries are found to be associated quite strongly with rates of growth of the per capita stock of capital, this is presumably due to the fact that, on the whole, where capital per worker is highest, labour skill, managerial efficiency and technical dynamism are also greatest; or, at any rate, that to the extent that this is not so, the effect of contrary factors is not sufficiently powerful to destroy the correlation between increases in output and in capital stock.

Granted a reasonably favourable political and social environment, and adequate labour and managerial skills, it is always possible in practice to accelerate the rate of growth by increasing the share of resources devoted to productive investment. That does not imply that equal additions to the capital stock will continue indefinitely to bring about corresponding additions to the volume of output. New capital formation is probably at its most efficient when there are reserves of labour which can be combined with it. But once full employment is reached, and unless the supply of labour can be expanded, additional capital investment involves increasing the intensity of capital, and this may mean raising capital requirements per unit of output. The cost to the economy in terms of immediate consumption forgone may begin to increase rapidly once the rate of growth has been raised beyond a certain point.

It should be noted that the curbing of consumption required to step up the rate of growth to any desired level does not have to continue indefinitely. Once the economy has adjusted to the new rate of growth, consumption will benefit along with investment. Initially, the acceleration of the growth rate requires that the capacity of the capital goods industries be made to increase more rapidly so as to provide the additional equipment needed. This in turn means that the capital goods industries must themselves use more of their own output than hitherto—for their own expansion—while proportionally less can be supplied to the consumer goods industries. In the first instance, therefore, the rate of growth of consumption is slowed down. The faster growth of capacity of the capital goods industries, however, now makes it possible for the volume of equipment supplied to the consumer goods industries to rise more rapidly than before. In short, the initial sacrifice of consumption, and the ploughing back of capital goods into the capital goods sector itself, lead in the end not merely to a higher level of consumption than would otherwise have prevailed, but to a more rapid rate of increase in that level.

The balance struck between investment and consumption is, of course, not simply a matter of the technical relationships between sectors of the economy. The ability of an economy operating at full employment to raise its rate of growth may depend not only upon the physical capacity of its investment goods industries but also upon the extent to which, within the given political and social context, additional savings can be mobilized either by the private or the public sector, or, indeed, abroad. Any imbalance between planned saving and investment will result either in inflation on the one hand or deflation on the other. Moreover, any inequality between domestic demand and supply will involve net borrowing or net lending abroad, as the case may be.

There are still many uncertainties as to the means whereby rapid economic growth might be encouraged. Nevertheless past experience does provide some guidance along these lines. It will be the object of the present chapter to review the most important lessons of postwar investment experience in the industrially developed countries and to examine the various governmental policies that have been adopted in this field.

The historical perspective

The rate of growth of output in the industrial countries as a whole during the nineteen fifties has been broadly comparable to the rate achieved during the major period of upswing of the nineteen twenties. As will be seen in table 1-1, several countries recorded significantly higher rates of expansion in the nineteen

Table 1-1. Rate of Growth of Output[a] and Share of Investment in Output,[b] 1923-1929 and 1950-1958

Country	Rate of growth of output (percentage per annum)		Share of investment in output (percentage)	
	1923–1929	1950–1958	1923–1929	1950–1958
Belgium	7.0	2.9	...	15.4
Canada	4.9	4.0	20.6	23.4
Denmark	1.5	2.3	10.1	17.6
Germany (Federal Republic)	2.8	7.4	17.8	20.8
France	2.3	4.3	9.8	17.2
Japan	5.1	7.9	17.4	21.7
Netherlands	4.1	4.5	19.4	21.6
Norway	3.4	3.0	13.2	28.4
Sweden	4.2	2.9	11.9	19.9
United Kingdom	2.9	2.2	9.8	14.0
United States	3.3	3.3	15.0[c]	14.2[c]

Source: Post-war data from United Nations, *Yearbook of National Accounts Statistics, 1959* (sales number: 60.XVIII.3); for the United States, from United States Department of Commerce, *United States Income and Output* (Washington, D. C., 1958) and *Survey of Current Business* (Washington, D. C.), February 1960; pre-war data for the Federal Republic of Germany, Norway, Sweden and the United Kingdom and output data for the Netherlands from Angus Maddison, "Economic Growth in Western Europe, 1870–1957", Banca Nazionale del Lavoro, *Quarterly Review* (Rome), March 1959; investment data for the Netherlands and output data for Belgium and France from Colin Clark, *The Conditions of Economic Progress*, second edition (London), 1951. Investment data for France from Simon Kuznets, "International Differences in Capital Formation and Financing", *Capital Formation and Economic Growth* (Princeton University Press, Princeton, 1955). Data for Canada from Department of Trade and Commerce, *Private and Public Investment in Canada, 1926–1951* (Ottawa, 1951) and O. J. Firestone, *Canada's Economic Development, 1867–1953*, Income and Wealth Series VII (London, 1958); for Denmark, from K. Bjerke and N. Ussing, *Studier over Danmark's Nationalprodukt, 1870–1957* (Copenhagen, 1958); for Japan, from K. Ohkawa and associates, *The Growth Rate of the Japanese Economy since 1878* (Tokyo, 1957); and for the United States from J. W. Kendrick, *Productivity Trends in the United States*, forthcoming publication of the National Bureau of Economic Research, Inc. (New York).

Note: In some cases pre-war data cover less than the full period from 1923 to 1929. Post-war data for the United States relate to the period 1950 to 1959. There are certain minor conceptual differences in some of the estimates, but these do not appear to have any major effect on the comparability of the data.

[a] Gross domestic product in constant prices.

[b] The ratio of gross fixed capital formation to gross national product, both in current prices.

[c] Gross private domestic fixed capital formation.

fifties than in the nineteen twenties.[1] For the group of industrial countries as a whole, however, the comparison between the two periods is greatly influenced by the fact that the United Kingdom and the United States recorded growth rates in the fifties that were no higher than in the twenties, largely because of a tendency for the rates to slacken significantly after 1955.

Available data also suggest that, in terms of current prices, the share of investment in total output in recent years has been higher than in the nineteen twenties not only in those cases where the rate of growth has been greater, but even in those countries where growth rates have been lower. In fact, of all the countries listed in table 1-1, only the United States shows a decline in the share of total resources allocated to investment, since the nineteen twenties. It will be observed, however, that the investment ratios set forth in table 1-1 are in current prices, while available indications are that the prices of capital goods have risen more than the prices of other components of output during the past thirty to forty years. If the investment ratios in table 1-1 could be calculated in volume terms, certain countries other than the United States might well show a drop in these ratios from the nineteen twenties to the nineteen fifties. A possible explanation for this phenomenon is that there may have been a decline in capital-output ratios in these countries, associated particularly with the development

[1] There are a number of ways in which the rate of growth of output may be calculated. In this study, it has been calculated as the constant annual rate of growth given by a logarithmic straight line joining the terminal years. An alternative measure —the logarithmic trend rate of growth—while superior in some ways in indicating long-run tendencies in output, was not employed here in view of the large margins of error involved in calculating trends for the relatively brief periods under consideration in this chapter. It will be obvious, however, that the economic circumstances obtaining in the terminal years will significantly affect the calculated growth rates—the effect varying inversely with the length of the period. This difficulty applies particularly to estimates of growth rates in the post-war period, considered as representing long-run tendencies. A beginning year selected soon after the end of the Second World War, includes, to a varying degree, the elements of recovery and reconversion. In recent years, on the other hand, many of the industrial countries have experienced a decline in the degree of utilization of capacity, thus imparting a downward bias to the calculated growth rates. In view of the fact that the 1958 recession was particularly marked in the United States and that data for 1959 became available for that country in time for incorporation in the study, most calculations pertaining to the United States have been based upon the period 1950-1959. It should be noted, however, that the selection of one particular measure of the rate of growth rather than another does not alter the basic conclusions reached in the present chapter.

of considerable economies in the use of industrial buildings.[2]

In some countries, however—notably Denmark, France, Norway, Sweden, and the United Kingdom—the post-war investment ratios have been so much higher than during the nineteen twenties that there must also have been increases in real terms. In Denmark and France these increases accompanied significantly higher post-war growth rates. In Norway, Sweden and the United Kingdom, on the other hand, markedly higher investment ratios were associated with somewhat lower rates of growth. This apparent paradox is explicable in terms of the low level of output in relation to capacity during the greater part of the nineteen twenties which tended to depress investment; output did not rise significantly above previous peaks until 1926 in the case of Sweden, 1927 in the United Kingdom and 1928 in Norway. In addition, special factors have contributed to the high post-war investment ratio in Norway, and these will be discussed below.

Although in many of the industrial countries the post-war recovery could, from certain points of view, be considered to have been completed by 1950, there is no doubt that growth since 1950 does to some extent have a reconstruction element in it, which called for a significant volume of investment. This was particularly important in the Federal Republic of Germany and Japan, where post-war rehabilitation began much later than in the other countries listed. Even in some of the other countries, however, the early post-war reconstruction of industrial capital was to some extent at the expense of social capital, and investment in the replacement of dwellings may not have been completed until later. It is also likely that some of the post-war capital formation has been designed to make good arrears of investment dating back as far as the years of depression, when investment had fallen to very low levels, and to catch up with technological advances made possible by war-time research and development. All these factors have tended to raise the level of investment.

Apart from these essentially temporary influences, a number of factors of a more permanent character have also affected post-war growth rates and investment ratios. The commitment of governments to full employment policies and containment of cyclical fluctuations probably had a favourable long-term effect on the outlook for investment. So also did the enlarged post-war consumption horizon, particularly as regards the growing demand of the population for durable consumer goods. The greatly increased post-war outlays of government and business upon research have tended to enlarge the scope of profitable investment opportunities. And the higher share of defence expenditures in total output must also have exerted a considerable influence in so far as the investment content of defence expenditure is higher than for a corresponding volume of civilian goods and services.

There has been a wide range of variation in the rates of growth within the group of industrial countries. The annual movement of gross domestic output and gross fixed capital formation in each of the industrial countries over the period 1950-1958 is shown in chart 1-1. The cumulative growth rate for each of the two variables is indicated alongside the appropriate curve. The range of variation in the rate of growth of output extends from 7.9 per cent per annum for Japan at one extreme to 2.2 per cent per annum for the United Kingdom at the other. The extreme rates of growth of capital formation are more widely separated than those for output, but for most of the countries the two rates do not diverge by more than two percentage points. Moreover, with the exception of Belgium and the United States, the rate of growth of capital formation has exceeded that of output. Thus, in terms of demand for output, fixed investment has contributed more than proportionately to the annual growth in production in all but two of the industrial countries. At the same time, an increasing share of output has been allocated to an enhancement of productive capacity.

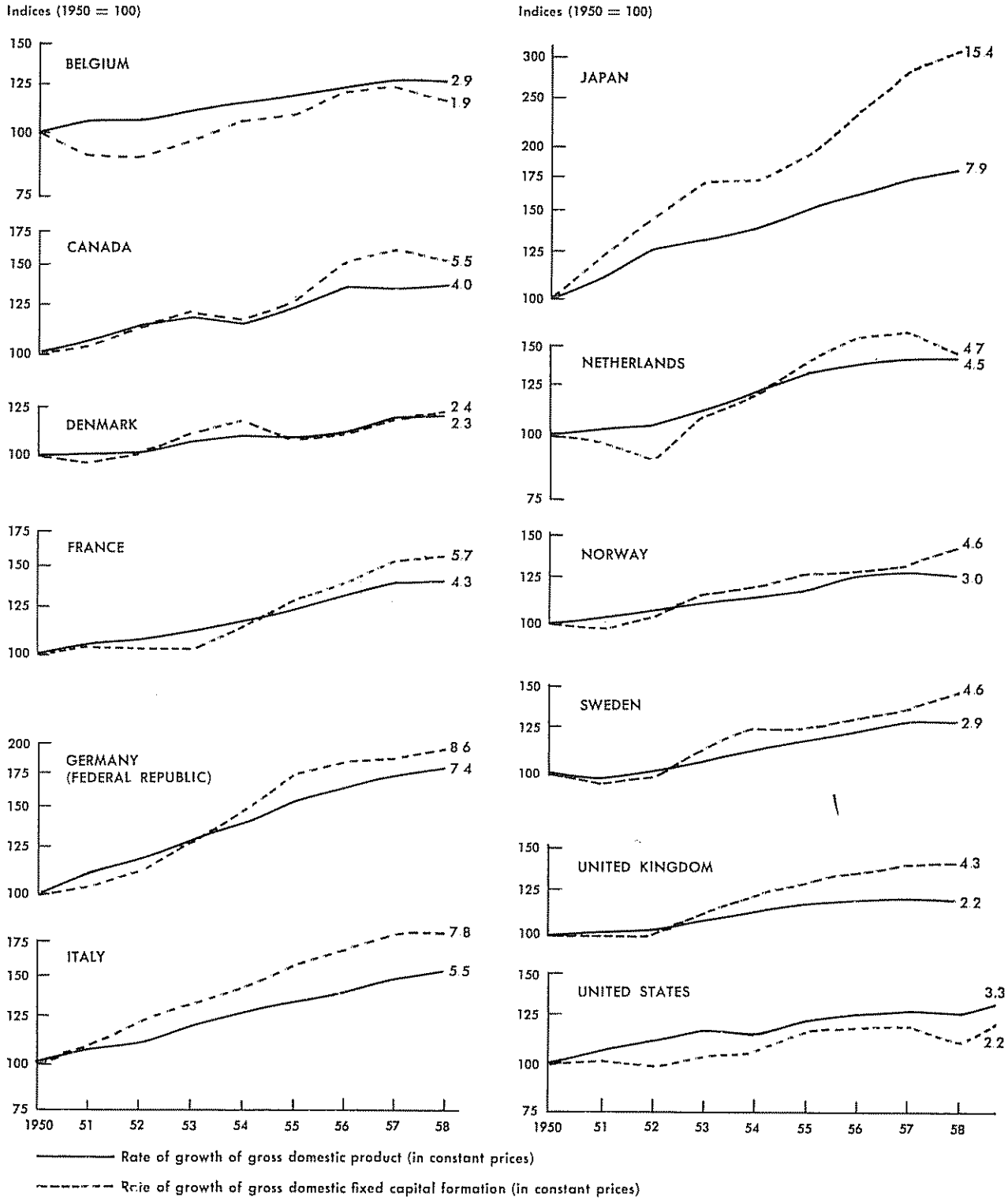
It is clear from the data shown in chart 1-1 that the growth in output and fixed investment has not proceeded smoothly and continuously since 1950. In most of the western European countries, real output rose sharply between 1950 and 1951/52 as a consequence of the outbreak of hostilities in Korea. Thereafter, it faltered for a brief period and again resumed its upward course until 1956/57 when the rate of growth of output slackened perceptibly. In North America, the rate of growth was halted first in 1953/54 and again in 1957/58 but was subsequently resumed. In Japan, the slower rate of advance between 1952 and 1954 represented only a minor departure from the high growth rate generally experienced by that country.

In most of the industrial countries the annual rate of capital formation has tended to fluctuate around the path traced by the growth in output. During the early part of the period, the retardation in investment growth in relation to output was associated with the Korean conflict. In many countries, the immediate consequence was a substantial rise in government claims on resources, involving a curtailment of investment expenditures in

[2] *See*, for example, International Association for Research in Income and Wealth, *The Measurement of National Wealth*, Income and Wealth Series VIII (London, 1959), table VI, pages 30 to 31; Rolf Krengel, "Anlagevermögen, Produktion und Beschäftigung der Industrie", Deutsches Institut für Wirtschaftsforschung (Sonderheft 42, Series A) (Berlin); D. G. Wooden and R. C. Wasson, "Manufacturing Investment Since 1929 in Relation to Employment, Output and Income", United States Department of Commerce, *Survey of Current Business* (Washington, D. C.) November, 1956; Philip Redfern, "Net Investment in Fixed Assets in the United Kingdom, 1938-1953", *Journal of the Royal Statistical Society*, Series A (General), part II, 1955 (London); and Royal Commission on Canada's Economic Prospects, *Output, Labour and Capital in the Canadian Economy* (Ottawa, 1957).

Chart 1-1. Growth in Real Output and Capital Formation, 1950-1958[a]

(Indices, 1950 = 100; semi-logarithmic scale)



Source: United Nations, *Yearbook of National Accounts Statistics, 1959*, and earlier issues.

Note: The compound annual rate of growth over the period appears alongside the appropriate curve.

[a] Data refer to 1950–1959 for the United States.

the private sector. The investment boom that marked the middle of the period derived much of its momentum from a shift in the pattern of consumption, particularly in western European countries, in favour of consumer durable goods. And, finally, towards the end of the period, the rate of investment slackened when output failed to maintain pace with the growth in productive capacity.

The greater amplitude of fluctuation in capital formation than in output characteristic of post-war experience in the industrial countries has prompted governments to focus upon the rate of investment as one of the crucial factors through which economic stabilization measures might be implemented. The policy measures consequently adopted by governments constitute a separate factor affecting the post-war investment experience of the industrial countries and will be considered in a subsequent section of this chapter.

The relation between investment and growth

THE INVESTMENT RATIO

The role of fixed investment in influencing the growth of output is a dual one. On the one hand, expenditure on buildings, plant and equipment represents one of the components of demand for current output in an economy, the satisfaction of which generates a concomitant flow of income. Thus an increase or a decrease in the rate of capital formation is directly reflected in the annual flow of goods and services. On the other hand, the erection of buildings and plants, and the installation of machinery and equipment create a capacity to produce goods and services over a future period of years. The precise relationship between the annual volume of capital formation and the growth of productive capacity will depend among other things on the type of fixed asset, the extent to which the latest production techniques are embodied, the durability and degree of utilization of the asset, and replacement requirements on account of wear and tear and obsolescence. Thus the growth of productive capacity in plant and equipment is related both to the annual volume of capital formation and its productivity.

It should be observed that at any given time there is a stock of capital in existence, resulting from past accumulation and reflecting the expectations of entrepreneurs regarding the pattern of demand in the future. Such expectations are only imperfectly realized in practice, and with changing levels of income it is not surprising to find the capital stock inadequately adapted to the accompanying changes in the pattern of demand. Some sectors of the economy may find themselves confronted by excess capacity while others experience shortages owing to insufficient productive capacity.

Thus new investment is important not merely because it adds to capacity in the aggregate, and because it provides the means whereby the latest technical innovations are introduced into the productive process. It is important also because it is the means whereby flexibility can be introduced into the capital stock, and adjustments made to the current and expected pattern of demand. Moreover, the larger the volume of investment in relation to the existing capital stock, the greater, in general, will be the responsiveness of available productive capacity to changes in market requirements.

It is for this reason that as between two countries of comparable levels of economic development in which the per capita rate of capital formation is the same, the one with the greater growth of population may have an immense advantage. For in so far as rapid growth of population leads to a correspondingly higher volume of investment, the average technological level of fixed capital assets will also tend to be higher and the degree of adaptation of capacity to the pattern of demand will be greater.

For each of the industrial countries, the average share of gross fixed capital formation[3] in gross domestic product over the whole period from 1950 to 1958 is shown in table 1-2. It will be seen that the range of variation among countries is very wide; the data suggest that Norway has allocated slightly more than twice as large a share of its annual output to gross fixed investment as the United Kingdom.

[3] During the following discussion, fixed capital formation is invariably defined in terms of gross flows. It differs from net fixed capital formation by the amount of capital consumption allowances or depreciation charges. In evaluating the role of investment in creating productive capacity, theoretical considerations suggest that investment, net of depreciation, is a better measure of capacity expansion. However, current methods of estimating depreciation charges fall far short of what is required on strictly economic grounds. Depreciation represents essentially an accounting measure of annual charges against income based on an estimated "normal" life of the asset and its original cost. This measure is primarily designed for purposes of taxation or for the internal financial requirements of an enterprise. In fact, however, the productive capacity of an asset is a function not of accounting methods but rather of market evaluations. An asset that has been fully depreciated may be retained in service during periods when demand pressures are high. On the other hand, an asset may be discarded for reasons of obsolescence long before it has been depreciated in accounting terms.

The gross capital formation concept also does not measure changes in productive capacity accurately, since it does not distinguish between replacement investment and net additions to the capital stock. For example, the gross concept takes no account of the possibility that a changing proportion of annual capital formation may be required for replacement rather than additions to the capital stock. However, the error involved in using investment as an indicator of growth in capacity is probably less if the gross measure is employed rather than the net. Practical considerations of availability of data, especially disaggregated by sectors of the economy, also dictate the use of gross rather than net investment in the following discussion.

Gross fixed capital formation, as used in the numerator of the ratio described above, aggregates the volume of expenditure on all types of durable physical goods, including residential housing and those employed in the administration of public affairs and in the provision of public services such as government buildings, schools, hospitals and roads. The construction of dwellings may be an important element in achieving a better allocation of resources if it enables labour to move to the areas where it is most needed. It may also have a beneficial effect upon the morale of workers and hence upon their productivity. Similarly investment expenditure for government administration and social services may help to provide a political and social framework that will promote economic efficiency. Nevertheless, for some purposes it is useful to segregate those expenditures incurred directly for the expansion of productive capacity and those whose impact upon capacity is much more indirect. Thus column 4 in table 1-2 indicates the average share of "productive" investment in gross domestic product for each of the industrial countries, after deducting the share of residential construction and general government investment in gross domestic product.

While the effect of the exclusion of "non-productive" investment is to reduce the absolute range of variation among the listed countries, their ranking is not significantly affected. The relatively large share of resources devoted to fixed investment in Norway, even after allowance for residential construction and general government capital formation, reflects in part the structure of production in that country. In Norway much more than in the other industrial countries, the pattern of output is heavily weighted and is in process of being shifted in favour of those types of goods and services, such as shipping and power generation, in which capital is of above average durability and in which, therefore, the capital-output ratio is high. In addition, government policy throughout most of the post-war period has been deliberately geared towards achieving a high level of capital formation.

It will also be noted that Japan devotes a relatively small proportion of its total output to housing, averaging less than 2 per cent over the period. To some extent, however, this relatively low figure reflects the lower ratio of prices of housing to prices of other investment goods in Japan than in the other industrial countries. Before considering the relationship of the share of capital formation in total output to the rate of growth, it may be appropriate, in fact, to examine the pricing question more broadly so as to establish how far disparities in investment ratios may be due to differences in the relative levels of prices of investment goods in the various countries. How far, in other words, does the fact that prices of capital goods are lower in relation to other prices in some countries than in others affect the ranking of countries in table 1-2?

Table 1-3 shows the ranking of countries in respect of the share of output devoted to total fixed capital formation, and separately for producer durables on the basis of national price relationships obtaining in 1950, alongside a calculation based upon an average Euro-

Table 1-2. Average Investment Ratio[a] and Growth of Output,[b] 1950-1958

Country[c]	*Gross fixed capital formation* (percentage of gross domestic product) (1)	*Residential construction* (2)	*General government capital formation* (3)	*Gross productive investment*[d] (4)	*Growth of output* (percentage per annum) (5)
Japan[e]	21.8	1.8	3.2	16.8	7.9
Germany (Federal Republic)	20.6	5.0	2.6	13.0	7.4
Italy	19.7	4.6	2.5	12.6	5.5
Netherlands	22.1	4.1	3.5	14.5	4.5
France	17.3	3.9	1.8	11.6	4.3
Canada	21.8	4.4	3.2	14.2	4.0
United States[f]	16.5	4.5	2.3	9.7	3.3
Norway	29.4	4.7	3.7	21.0	3.0
Belgium	14.6	4.1	1.5	9.0	2.9
Sweden	19.9	5.1	3.0	11.8	2.9
Denmark	16.8	2.6	1.8	12.4	2.3
United Kingdom	14.4	3.0	1.5	9.9	2.2

Source: United Nations, *Yearbook of National Accounts Statistics, 1959*, and earlier issues; data on general government capital formation for the Federal Republic of Germany and Japan from official national publications.

[a] Ratio of gross fixed domestic capital formation to gross domestic product, both in terms of constant prices.

[b] Gross domestic product in constant prices.

[c] Countries are arranged in descending order of average growth of output.

[d] Column 1 less columns 2 and 3.

[e] Investment ratio calculated on basis of data in current prices.

[f] 1950–1959.

Table 1-3. Gross Fixed Capital Formation in Producer Durables and Construction, 1950
(Percentage of gross national product)

Country	Producer durables and construction				Producer durables			
	National prices		Average European prices		National prices		Average European prices	
	Percentage	Rank	Percentage	Rank	Percentage	Rank	Percentage	Rank
Norway	26.1	1	25.0	1	13.5	1	10.7	4
Netherlands	19.8	2	19.4	4	11.2	3	11.1	2
Germany (Federal Republic)	19.5	3	20.4	3	11.1	4	10.5	5
United States	18.9	4	18.5	5	8.3	8	11.0	3
Belgium	18.6	5	21.6	2	12.0	2	13.5	1
Denmark	17.8	6	17.9	6	10.3	5	10.3	6
Italy	17.8	7	16.0	8	10.0	6	6.9	9
France	17.0	8	16.9	7	8.7	7	8.8	7
United Kingdom	13.8	9	13.2	9	8.1	9	8.3	8

Source: See footnote 4.

pean price structure.[4] The correction for inter-country price comparability clearly does not significantly alter the range of variation in the investment ratio among these countries. With the exception of Belgium, the ordering of the countries is also relatively little changed. The shift in the ranking of Belgium from fifth to second place reflects the fact that, compared with other European countries, investment goods are relatively cheap in that country in relation to other goods. The comparison in terms of national prices therefore tends to understate the share of total output set aside for fixed capital formation in Belgium.

A similar comparison for producer durables alone—the component of investment most directly related to the provision of capacity for growth of output—reveals a greater shift in the ordering of countries. In correcting for price comparability, the ranking of Belgium, Italy, Norway and the United States is significantly altered. Italy, which ranks sixth in the share of investment in producer durables on the basis of national prices, falls to the last rank when its expenditure pattern is evaluated in terms of average European prices, while Norway shifts from the first to the fourth place. Belgium and the United States, on the other hand, rise in the ordering. These changes result from the fact that in 1950 producer durable goods were relatively expensive in Italy and Norway and relatively cheap in Belgium and the United States, when compared with the other industrial countries.[5]

Unfortunately, data in comparable prices are not available in the detail needed for the present study. It is, therefore, impossible to introduce the required corrections beyond the aggregative level or to deal with those industrial countries not included in the OEEC study. The following discussion will take account of any qualifications that are needed, so far as possible on the basis of the aggregate data.

What seems quite clear, however, is that the range of variation of the productive investment ratio shown in table 1-2 would be very much smaller if allowance were made for differences in the relative prices of investment goods and other goods in the various countries. After adjustment for this factor, and leaving aside the case of Norway, the range of variation is probably no more than five percentage points, instead of the twelve points (from 9 in Belgium to 21 in Norway) shown in table 1-2. As will be seen below, the smallness of this range is of considerable significance in the context of economic growth policies.

THE RELATION TO ECONOMIC GROWTH

It is now possible to consider whether inter-country differences in the productive investment ratio are related in any way to the rates of growth of output experienced by the industrial countries during the period from 1950 to 1958. The rate of growth of output in each of the countries is shown in column 5 of table 1-2. These growth rates appear to be positively related to the productive investment ratios shown in column 4. That is to say that those countries which had relatively high investment ratios during the period as a whole tended also to experience high rates of growth in output. That this relationship is not a perfect one is equally apparent. Norway, for example, which recorded the highest investment ratio, achieved a rate of growth in output only slightly higher than that of Belgium, the

[4] Based upon Organisation for European Economic Co-operation (OEEC), *Comparative National Products and Price Levels*, by Milton Gilbert and associates (Paris, 1958) and *An International Comparison of National Product and the Purchasing Power of Currencies*, by Milton Gilbert and Irving B. Kravis (Paris, 1954). In these special studies, the detailed expenditure patterns of eight western European countries and the United States in 1950 and extrapolated data for 1955 were evaluated by applying two separate price structures to each country. These calculations yield two sets of price data, one based on the price relationships obtaining in the United States and another on an average European price structure. Since the latter reflects more accurately the economic structure of most of the countries under discussion and also is conceptually more suitable for inter-country comparisons, it has been employed in calculating table 1-3. Moreover, since the data for 1955 show no significant alterations in the country rankings obtained in 1950, it may be assumed that inter-country price relationships calculated in terms of average European prices in 1950 are broadly representative of at least the major part of the period under review.

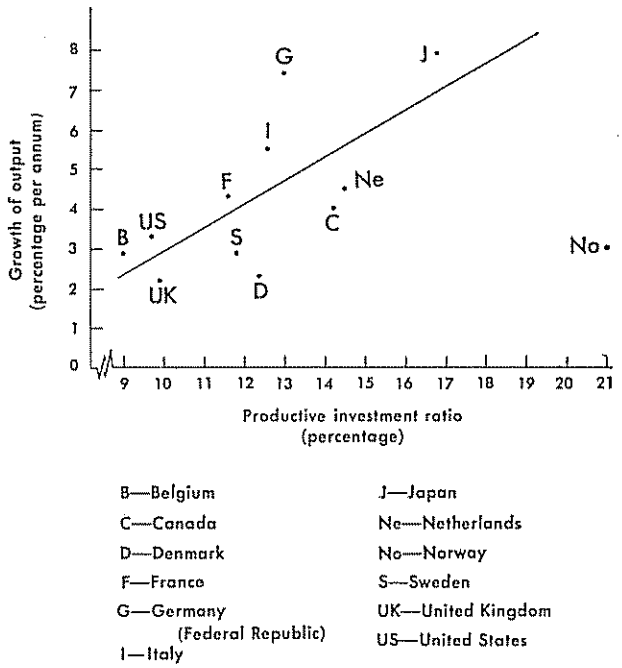
[5] A similar calculation in terms of the price relationships obtaining in the United States would raise the ranking of the United States even more as regards the ratio of investment in producer durables to gross national product.

country with the lowest productive investment ratio. In undertaking this comparison, however, allowance must be made for the understatement of the investment ratio in Belgium, noted earlier. Similarly the investment ratio in Norway is slightly more than twice that of the United Kingdom, while the difference in their respective rates of growth in output is substantially less.

The nature of the relationship between the growth in output and the productive investment ratio—reflecting resources devoted to the expansion in capacity—may be more clearly observed in chart 1-2. The data are there presented in the form of a scatter diagram, each point representing the experience of an individual country over the period. Most of the countries appear to fall near a line of "best fit"[6] running from the south-west to the north-east sector of the chart. The position of the line represents what the average experience of the industrial countries would have been if the investment ratio had been perfectly related to the growth in output.

Conclusions drawn from an inter-country comparison of the investment growth relationship over the period 1950-1958 are subject to at least one important qualification. This arises from the fact that the comparisons are based on a period of time which has been extracted from what is essentially a continuous long-run growth process. Since the configuration of economic growth will vary from one country to another, and indeed over time within a country, it is not unlikely that during a given period of time various countries will exhibit very different economic characteristics. If, however, it can be assumed that the cross-section of experience under discussion is fairly typical,[7] then one of the most important conclusions to be deduced from the relationships set forth in chart 1-2 is that countries achieving a high rate of growth did not have to devote a very much larger proportion of their resources to investment than other countries in order to bring about this result. The experience recorded in the chart suggests, for example, that on the average a country experiencing a 4 per cent annual rate of growth would show an investment ratio only about 2 per cent higher than a country experiencing a 3 per cent rate of growth. In other words, whatever else may have been required in order to accelerate the rate of growth—and much else may indeed have been required—a less than proportionate diversion of resources from other uses to investment seems to have served the purpose.

Chart 1-2. Relationship between Productive Investment Ratio[a] and Growth of Output, 1950-1958[b]



Source: Table 1–2.

[a] The ratio of gross fixed domestic capital formation, less residential construction and general government capital formation, to gross domestic product.

[b] For the United States the data refer to the period 1950–1959.

There are, of course, other factors apart from the inter-country differences in the investment ratio which enter into the determination of the pace of expansion. Some of these factors exert a direct influence upon the rate of growth of output—as in the case of structural changes in the economy—or on both output and investment simultaneously—as is true of the growth in the labour force. Still other factors, such as the degree of utilization of capacity, the composition of output and investment and the rate of absorption of technological progress, influence the productivity of capital in the first instance. It is to these factors that we must now turn for some explanation of the scatter of points about the line of "best fit" in chart 1-2, bearing in mind, however, that not every country is equally affected by the various factors discussed.

[6] In statistical terms this is known as the regression line obtained by the method of least squares. Norway was excluded from the calculation.

[7] Norway's experience during this period may be considered among the least typical because of the exceptional pattern of investment, discussed above.

Factors in the investment-growth relationship

Differences in the rate of growth of the labour force

The investment ratio is only one of the factors contributing to the growth of output—the role of labour is also crucial. The question as to how capital and labour are combined in the productive process and of their relative contributions to output is especially complex, since it involves an uncertain mixture of both technological and economic factors.

Nevertheless, it seems clear that differences in the rate at which the labour force is expanding in various countries are a major factor contributing to differences between them in the rate of growth of output. This is because investment is likely to be more productive when it takes the form of creating new capacity in association with additional labour than when it simply increases the intensity of capital used by a given labour force. In other words, part of the "scatter" of countries in chart 1-2 about the line of "best fit" may be regarded as due to inter-country variations in the rate of growth of the labour force.

This may be seen by examining chart 1-2 in the light of the data on the growth of the labour force shown in table 1-4. Unfortunately, labour force data are, in general, subject to great uncertainties. The data available do, however, appear to suggest a significant relationship between rates of growth of output and of the labour force. This relationship is clearest when countries grouped at the extremes are considered. For example, the Federal Republic of Germany and Japan, which experienced relatively high rates of growth of output, given their investment ratios also recorded high rates of expansion of the labour force; and the converse was true of the countries listed at the bottom of table 1-4.[8]

The combined effect of the investment ratio and rate of growth of the labour force does not appear to provide as satisfactory an explanation of the positions of Canada, France and Italy in chart 1-2 as of those of the other countries.[9] In the case of France the slow over-all growth of the labour force was associated with a rapid expansion of the industrial labour force owing to shifts of labour away from agriculture and this made it possible for France to secure a somewhat higher rate of growth than might have been expected simply on the basis of its investment ratio. A similar consideration underlies Italy's experience.

Canada, on the other hand, experienced a relatively rapid increase in the labour force and this ought presumably to have enabled that country to get more out of its investment than appears to have been the case. It will be seen below that in Canada the importance given to construction and the development of power and mineral resources required relatively large capital outlays in relation to output.

It is noteworthy that the rate of growth of output per worker is also positively associated with the investment ratio as may be seen from the last two columns of table 1-4. Thus the investment ratio would appear to have a bearing on the growth of labour productivity as well as upon the rate of growth of output. This suggests that even where countries are faced with a slow rate of expansion in the labour force, they may hope to secure gains in productivity and hence in output growth by raising the share of annual output devoted to productive investment.

[8] The simple correlation coefficient between the rate of growth of output and the investment ratio is 0.70 whereas the multiple correlation coefficient between the rate of growth of output on the one hand and the investment ratio and the rate of growth of the labour force on the other is 0.88. The addition of the labour force as an explanatory variable thus helps to account for a greater fraction of the variation in the rates of growth of output among countries.

[9] The position of Belgium above the line and—to a lesser extent—that of the United States may be due to the relatively low prices of producer durables in those countries, as pointed out previously.

Table 1-4. Rates of Growth of Labour Force and of Output Per Worker, 1950-1958

Country[a]	Growth of output (percentage per annum)	Growth of labour force (percentage per annum)	Growth of output per worker (percentage per annum)	Productive investment ratio (percentage)
Japan	7.9	2.4	5.5	16.8
Germany (Federal Republic)	7.4	2.1	5.3	13.0
Italy	5.5	1.0	4.5	12.6
Netherlands	4.5	1.2	3.3	14.5
France	4.3	0.6	3.7	11.6
Canada	4.0	2.2	1.8	14.2
United States[b]	3.3	1.0	2.3	9.7
Norway	3.0	0.4	2.6	21.0
Belgium[c]	2.9	0.3	2.6	9.0
Sweden	2.9	0.4	2.5	11.8
Denmark	2.3	0.4	1.9	12.4
United Kingdom	2.2	0.9	1.3	9.9

Source: Growth of output and productive investment ratio from table 1-2; labour force data from Organisation for European Economic Co-operation, *General Statistical Bulletin*, No. 1, 1958 (Paris); Angus Maddison, "Economic Growth in Western Europe, 1870-1957", op. cit ; and official national publications.

[a] Countries are arranged in descending order of rate of growth of output.

[b] 1950-1959.

[c] 1950-1957.

DIFFERENCES IN THE EXTENT OF STRUCTURAL CHANGE

Structural change may help to speed up or slow down the rate of growth of output corresponding to a given investment ratio by causing a shift of resources from low-productivity to high-productivity sectors, or vice versa.

It is not possible within the limits of the present study to examine all the ways in which such structural changes may have come about, but one of the main changes has certainly involved, for some countries at least, a transfer of resources from agriculture, where the average value of output per man is generally low, to other sectors of the economy, where the output per man is relatively high. The scope for increases in productivity from this source is indicated in the following table, where both the magnitude of the relative shift in output and the difference in sectoral productivity are shown for a number of industrial countries.

Output and productivity in agriculture

Country	Share of agriculture in gross domestic product[a]		Ratio of productivity in agriculture to productivity in other industries[b]
	1950	1958	
	(percentage)		
Canada	13.2	7.3	0.7
Denmark	21.3	17.5	0.8
Germany (Federal Republic)	10.9	8.6[c]	0.7
France	16.2[d]	...	0.6
Italy	29.3	20.8	0.5
Japan	26.0	18.4	0.4
Netherlands	14.2	11.2	0.7
Norway	14.9	11.8	0.5
United Kingdom	6.0	4.4	0.8
United States	7.8	5.5	0.3

Source: United Nations, *Yearbook of National Accounts Statistics, 1959;* Food and Agriculture Organization of the United Nations, *The State of Food and Agriculture, 1959* (Rome), annex table 14.

[a] Derived from the national accounts where gross domestic product is distributed by industrial origin; for Japan, the percentages refer to net domestic product. Forestry, hunting and fishing are included in agriculture.

[b] For agriculture, productivity is calculated in terms of output per capita of the population dependent on agriculture; for other industries it refers to output per capita of the population dependent on such industries. In general, data refer to the period 1952–1954.

[c] 1957.

[d] 1952.

Clearly, the largest gains occurred in Italy and Japan and to a lesser extent in Canada and possibly the United States. In Denmark, the Netherlands and the United Kingdom, on the other hand, the shift from agriculture was considerably less important in influencing the rate of growth of output per worker for the economy as a whole.

THE DEGREE OF UTILIZATION OF CAPACITY

A further influence upon the scatter shown in chart 1-2 results from inter-country differences in experience regarding the utilization of capacity. Owing to the spreading of overhead costs, productivity tends to rise up to a certain point as the degree of utilization of capacity increases. This tendency has become even stronger in the post-war period than it was before the war owing to the rising share of overhead costs in total costs associated with such developments as the relative expansion in technical, research and administrative staffs, the size of which is normally insensitive, on the whole, to changes in the volume of output.

Available information suggests a marked increase in the degree of utilization of capacity between 1950 and 1958 in the Federal Republic of Germany, France, Italy and Japan, while in most of the other countries the pressure upon capacity was appreciably less in 1958 than in 1950, particularly in view of the recession in 1958. The percentage of unemployed labour, as may be seen in chart 1-3, declined substantially in the Federal Republic of Germany. In Italy and Japan, while the trend in the unemployment ratio was either horizontal or upward, other evidence points to the existence of considerable excess productive capacity at the beginning of the period which was subsequently brought into fuller utilization;[10] similar qualitative evidence exists in the case of France. It might be expected, therefore, that for any given ratio of investment to output, production should have increased faster in the four countries noted above than in the remaining countries. Reference to chart 1-2 will show that this is in fact the case; the Federal Republic of Germany, France, Italy and Japan are all found above the line of "best fit", meaning that production increased relatively fast, given the proportions of resources which they devoted to new investment. The other countries, except Belgium and the United States, are found below the line. As noted previously, adjustment for the relatively low prices of investment goods in Belgium would have the effect of shifting that country also below the line; the same factor affects the United States to a lesser extent.

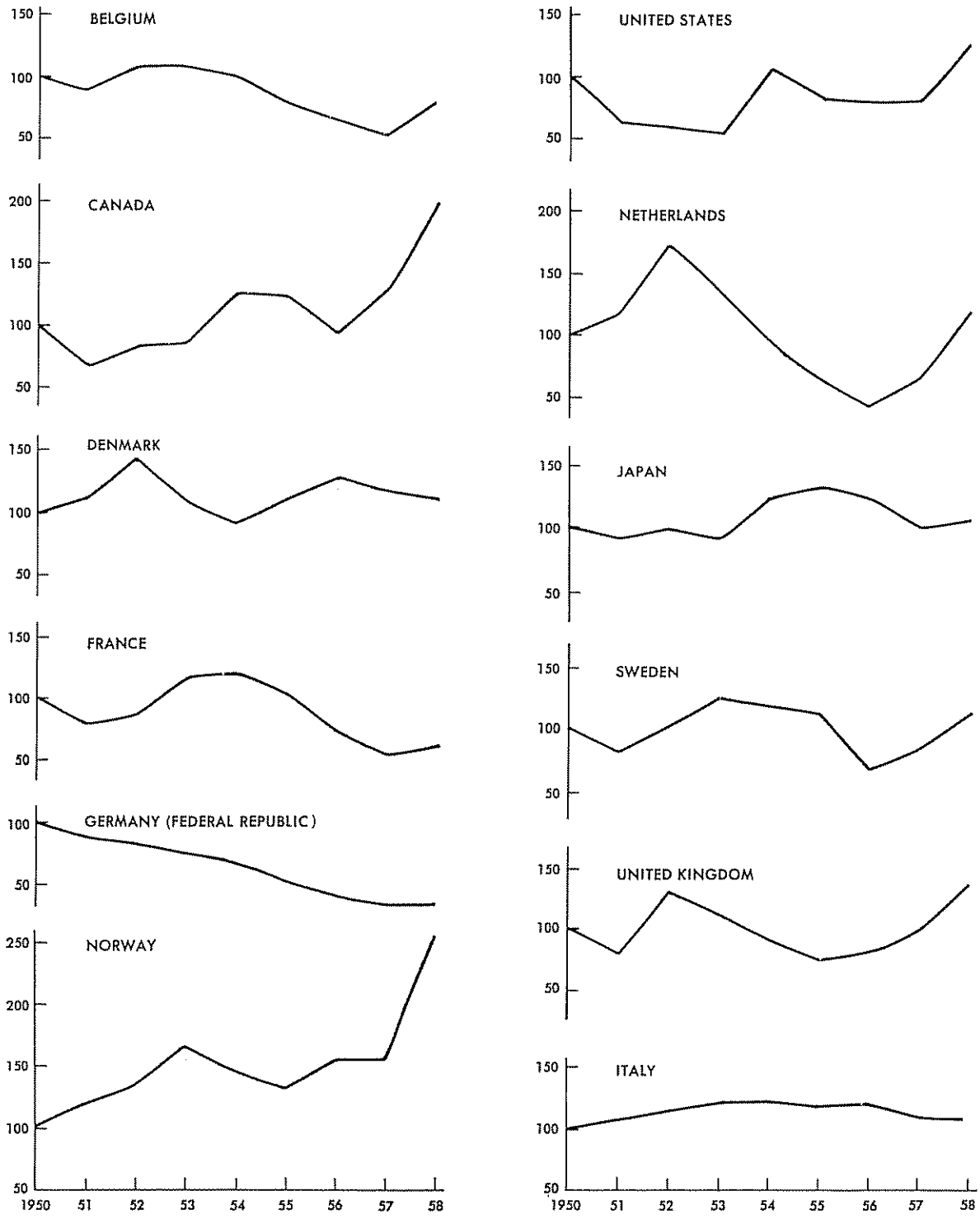
It should be noted that in Italy, and possibly to some extent also in the Federal Republic of Germany and one or two other countries, there was substantial structural unemployment in 1950—that is, unemployment resulting from the absence of complementary productive capacity rather than from inadequacy of effective demand. In these cases, the availability of such labour is likely to have had an expansive effect upon the productivity of new investment similar to that of a rapid rate of growth of the labour force. The main difference is that while a rapid growth of the labour force would tend to have a favourable influence upon capital productivity as long as it continued, the corresponding influence of structural unemployment would diminish as the unemployed were absorbed into industry.

An additional factor tending to bring about a high rate of growth of output in relation to capital require-

[10] In Japan, according to the Ministry of International Trade and Industry, the "capacity utilization ratio" in manufacturing rose almost continuously from 63 per cent in 1950 to 83 per cent in the first half of 1957.

Chart 1-3. Percentage of Unemployment,[a] 1950-1958

(1950 = 100)



Source: Statistical Office of the United Nations, *Monthly Bulletin of Statistics;* and official national publications.

[a] The percentage of unemployment relates generally to the ratio of registered applicants for work or surveyed unemployed to the total civilian labour force or to the civilian labour force available for hire. Unemployment percentages are not, however, comparable between countries owing to differences in definition.

ments in the cases of the Federal Republic of Germany and Japan was the fact that the recovery and reconstruction of these countries after the war did not gather speed until much later than in the other industrial countries. It may therefore be presumed that the period 1950 to 1958 includes considerably more of the reconstruction phase of their post-war economic development than in the case of the other countries under review. It was to be expected that the productivity of capital would be high during this phase because of the large gains obtainable from such factors as the reconstitution of inventories, the reintroduction of a smooth flow of supplies of raw materials and intermediate products and the readaptation at low cost of only partially destroyed buildings and even equipment.

While the countries possessing spare labour or equipment, or undergoing the early stages of reconstruction in 1950 were thus likely to benefit from high productivity of capital, countries utilizing their resources fully during the period were likely to find capital productivity depressed wherever there was imbalance in physical capacity or labour skills. It should be borne in mind that the various sectors of an economy are closely interrelated since the final output in any one sector depends to a greater or less degree upon the supply of intermediate goods and services from other sectors. Mutual interaction among the sectors imposes distinct boundaries upon the ability of any single sector to expand productive capacity profitably or to achieve a rate of growth in output that is independent of the growth in productive capacity in other economic areas of the economy. Since decisions to undertake capital formation are based on less than perfect foresight, imbalance in the structural growth of capacity and output is always possible—and is, in fact, likely to occur unless the pattern of demand happens to correspond closely to the pattern of output which can be supplied from existing capacity and labour skills at full employment. The consequences of imbalance may appear in the form of excess productive capacity in a particular branch of the economy over fairly long periods of time—as in the case of the declining textile industries in Belgium, France, Italy and the United Kingdom; or alternatively, the consequences of imbalance may be seen in difficulties experienced in expanding output in some sector in response to growing demand, because of limitations on productive capacity or skilled labour available in that sector—as occurred for a time in the basic coal and steel industries as well as in some sections of the engineering industry in several western European countries.

Where there is sectoral excess capacity owing to a shift in the pattern of demand, the average productivity of capital is less than it otherwise might be because part of new investment is associated simply with changing the structure of employment, and a correspondingly smaller proportion of investment is therefore available for the net creation of new capacity or for raising the volume of equipment used per head. On the other hand, where there are sectoral bottlenecks, the rate of growth of total output corresponding to a given investment ratio is held back to an extent depending upon the importance of the bottleneck sector as a supplier of primary or intermediate goods.

Imbalance between the pattern of demand and the pattern of supply may have been one of the most important single elements accounting for the fact that the countries where unemployment was low during the period under review were among those that secured the smallest rates of increase in output per head for a given ratio of investment to output. In the United Kingdom, particularly, there was considerable competition for the limited supplies available from the engineering industries as between the claims of defence, of exports, of durable consumption and of investment. Although all countries experienced this problem to a greater or less extent, it was in the countries where there was the least spare labour and capacity available that the imbalance was most severe.

While the productivity of a given structure of new investment is inevitably limited by the appearance of bottlenecks in one or more sectors of the economy, it is always possible in such circumstances to achieve a marked improvement in the productivity of new investment by increasing the share of resources devoted to the bottleneck sectors. The extent to which capacity was augmented in the metal and engineering industries which were a key bottleneck area in the post-war period is illustrated in table 1-5. The share of total gross capital formation flowing into these industries is shown for a number of industrial countries, along with the rate of growth in output experienced.

Table 1-5. Investment and Growth of Output in Metals and Engineering Industries,[a] 1950-1957

Country[b]	*Gross capital formation in percentage of*		*Growth of output*[c] *(percentage per annum)*
	Gross domestic product	*Gross productive fixed investment*	
Germany (Federal Republic)	2.3	17.8	12.8
France	1.9[d]	17.4[d]	9.2
United Kingdom	1.4	14.6	4.3
Netherlands	1.4	10.1	7.7
Norway	1.4	7.1	7.5
Canada	1.1	7.2	4.6
United States	1.1	10.7	4.3
Sweden	0.6[d]	4.8[d]	3.3

Source: Organisation for European Economic Co-operation, *General Statistical Bulletin;* and official national publications.

[a] The industry coverage of metals and engineering varies as between countries, but in general includes fixed investment in the basic metals, mechanical and electrical engineering, transport equipment and shipbuilding industries.

[b] Countries are arranged in descending order of the ratio of gross capital formation in metals and engineering to gross domestic product.

[c] Based on appropriate components of the index of industrial production.

[d] Refers to the average for the period 1952–1957.

It will be seen from the data shown in table 1-5 that France and the United Kingdom have compensated partly or wholly for their relatively low over-all productive investment ratio by allocating a relatively high share of investment to one of the most expansive economic sectors. Of the countries shown in the table, productive capacity in the metals and engineering sector appears to have expanded most in the Federal Republic of Germany and France. Significantly, the problem of sectoral imbalance in the post-war period did not present itself in serious form in these two countries and a relatively high rate of growth of output in metals and engineering was achieved. Although the table suggests a significant relationship between investment and the rate of growth of output in the metals and engineering sector, other factors, particularly the level of demand, have also had a considerable effect on the growth of output. Thus the low rate of growth of output in the United Kingdom, given the level of investment in the metals and engineering sector, was due largely to the stagnation of demand after 1955.

In some cases the productivity of new investment may appear to be low because investors plan deliberately for excess capacity. In Canada, for example, the basic structure of the railway network was established by the early part of the twentieth century. Given the vast distances to be traversed and the low density of population in that country, excess capacity in this basic facility may be said to have existed from the very beginning. During the post-war period, new major capital facilities such as overland natural gas transmission lines and the St. Lawrence Seaway were constructed. However, these cannot be expected to be more fully utilized until some years hence. Similarly, in Norway hydroelectric power developments have proceeded beyond present demands, taking into account anticipated demand in the future. Clearly these types of capital project can be expected to yield a flow of output over many years to come. At the same time, however, they tend to contribute to the relatively high capital cost of output that both countries have experienced over the recent period.

DIFFERENCES IN THE COMPOSITION OF INVESTMENT AND OUTPUT

Inter-country disparities in the capital cost of growth in output may be considerably affected by differences in the composition of new investment. The industrial structure of the productive capacity or stock of durable assets in a country is ultimately related to the interaction between the country's endowment of natural resources (including specialized labour skills) and the pattern of demand for its output that has evolved over the years. It is no accident, for example, that the major shipping nations of today are those adjacent to the sea and in which the seafaring tradition is strong, nor that the major world suppliers of certain agricultural products are countries where large land masses have been brought under extensive cultivation. Given the available resources, productive capacity in any sector of the economy is created in response to revealed and anticipated demand for output of that sector. The industrial structure of productive capacity and hence the required stock of durable assets will, therefore, differ among countries in accordance with differences in the pattern of demand for their output.

There is evidence to suggest that the volume of capital required to produce a unit of output varies significantly among the broadly defined sectors of the economy. Furthermore, the differences between sectors exhibit a marked degree of uniformity among the various industrial countries. The first column in table 1-6 shows the median incremental capital-output ratio for each of five major sectors as derived from the calculations made for

Table 1-6. Sectoral Differences in the Incremental and Average Capital-Output Ratios
(Indices, power and utilities = 100)

Sector	*Incremental capital-output ratio, 1950–1958 (median for eight countries)*	*Average capital-output ratios*			
		Canada 1955	*Germany (Federal Republic) 1955*	*Japan 1955*	*Norway 1955*
Power and utilities	100	100	100	100	100
Transport, communications and storage	65	60	91	41	37
Agriculture[a]	39	14[b]	29	16	55
Industry[c]	26	15	11	10	16
Manufacturing	24	18	..	11	..
Trade and services	18	11	13	13	13

Source: Incremental capital-output ratio based on data from United Nations, *Yearbook of National Accounts Statistics, 1959;* average capital-output ratios based on national sources.

[a] Including forestry and fishing.
[b] Structures and equipment only.
[c] Includes mining, manufacturing and construction.

eight industrial countries.[11] Since it is only the inter-sectoral relationships rather than the absolute values that are of relevance here, the ratios are presented in the form of index numbers, with that for the power and utilities sector equal to 100.

It is clear from the sectoral index numbers that the incremental capital-output relationship for manufacturing industry and for trade and services, on the one hand, is distinctly lower than that for the transport and for the power and utilities sectors, on the other. This is to say that among the industrial countries generally a given increase in output in the manufacturing sector over the period has been secured with a considerably smaller increase in the volume of durable assets than that required in either the transport sector or the power and utilities sector.

The relationships described above are defined in terms of increments in gross fixed capital and in output in each of the productive sectors, taken over the relatively short period of eight years. In order to check the significance of these results, calculations have been made of sectoral average capital-output ratios for the four countries for which reasonably comparable data could be assembled: since the average ratios take account of the entire stock of durable assets in each sector, they are likely to be much more stable than the incremental ratios. It will be seen from table 1-7 that the average and incremental ratios exhibit a marked similarity which, in all the circumstances, must be considered significant.[12] Moreover, a comparison of the average sectoral capital-output ratios for the years 1950 and 1955 has revealed a high degree of stability in the ratios.

Given the variations in inter-sectoral capital-output ratios, differences in the investment ratio among countries are influenced by the average composition of output over the 1950-1958 period, which is shown in table 1-7 for eight of the industrial countries. These data are placed alongside the sectoral capital-output ratios taken from the first column of table 1-6.

The average composition of output among the industrial countries, as presented in table 1-7, reveals with one exception a fairly narrow range of variation in the industrial and basic facility sectors—the latter represented by power and transport. The role of agriculture, forestry and fishing, however, varies more markedly among the industrial countries, as does that of the trade and services sector. The relative importance of output in high capital cost sectors such as shipping in Norway, on the one hand, and the relative importance of low capital cost sectors in the Federal Republic of Ger-

[11] The countries are: Canada, Denmark, the Federal Republic of Germany, Italy, the Netherlands, Norway, the United Kingdom and the United States. The median for each sector was actually based on a maximum of eleven possibilities since the ratio in some countries was calculated in terms of constant prices and in current prices. While the absolute values differed as between the constant and current price calculation, the inter-sectoral relationship was unmistakably revealed in both cases. The comparative significance of the index numbers may be taken to be greater, the larger is the difference between them.

[12] The similarity would be even more pronounced if the basis of estimation of the capital stock and the coverage of each sector could be standardized in the four countries. In Norway, for example, the value of livestock is included in the capital stock of the agricultural sector, whereas it is excluded in the other countries. In addition, however, the Norwegian ratio is relatively high because of the greater importance of fishing and whaling, an industry which has a relatively high capital-output ratio

Table 1-7. Sectoral Differences in Capital-Output Ratio and Composition of Output,[a] 1950-1958
(Index, power and utilities = 100; sectoral composition in percentages)

Sector	*Index of incremental capital-output ratio (median for eight countries)*	*Sectoral composition of output*								
		Canada	*Denmark*	*Germany (Federal Republic)*[b]	*Japan*[b]	*Italy*	*Netherlands*	*Norway*	*United Kingdom*	*United States*
Power and utilities	100	3	2	2	9	3	[c]	2	3	2
Transport, communications and storage	65	10	11	9		7	10	19	9	8
Agriculture[d]	39	12	23	11	23	27	14	15	5	7
Subtotal		25	36	22	32	37		36	17	17
Industry[e]	26	42	..	54	32	44	45[e]	39	49	38
Manufacturing	24	31	32	..	25	..	..	..	40	36
Trade and services	18	33	32[f]	24	36	19	31	25	33	45[f]
Subtotal		75	64	78	68[g]	63	76	64	82	83

Source: Index from table 1-6; sectoral composition from United Nations, *Yearbook of National Accounts Statistics, 1958* (sales number: 59.XVIII.3).

[a] Derived from the distribution of gross domestic product by industrial origin in current prices and excludes ownership of dwellings and public administration and defence.

[b] Average, 1950–1957, and based upon the distribution of net domestic product by industrial origin.

[c] Power and utilities included under industry.

[d] Including forestry, hunting and fishing.

[e] Including mining, manufacturing and construction.

[f] Including construction.

[g] Including public administration, and ownership of dwellings.

many, on the other, stand out in the comparison. It will be recalled that these countries experienced greatly divergent rates of growth of output in relation to their respective investment ratios during the period. While within these extremes the significance of differences is reduced, it would seem that the composition of output in Canada, Denmark and possibly the Netherlands has tended to exert an influence in favour of higher rather than lower capital requirements. The three countries are among the previously defined group in which the investment ratio appeared to be relatively high when related to the rate of growth in output actually achieved.

Another structural factor that might be expected to exert an influence upon the investment-growth relationship is the composition of investment by type of capital good—structures on the one hand and machinery and equipment on the other. Assets in the form of buildings and engineering construction are more durable than machinery and equipment, and therefore contribute to the flow of output over relatively longer periods of time. Thus, over the period 1950 to 1958, a given volume of investment in construction is likely to have had a smaller impact upon the rate of growth of output than an equivalent volume of investment in machinery and equipment. We may consider, therefore, the inter-country differences in the average ratio of construction to machinery and equipment in order to establish whether the differences that emerge contribute to an understanding of the divergences in the investment experience of the industrial countries since the war. The construction-equipment ratios for the industrial countries are shown in table 1-8, calculated in terms of both national prices and, for those countries where the data are available, in average European prices.

The average ratio of construction to equipment in terms of national prices ranges from 120 in Canada at one extreme to 42 in the Federal Republic of Germany at the other. This is to say that rather more than half of Canada's average annual volume of capital formation (excluding residential construction) has gone for construction, whereas, in the Federal Republic of Germany, the equivalent category of capital goods has absorbed only about a third of its non-residential fixed investment. The high ratio in Canada is not surprising in view of the large-scale engineering works put in place in recent years. The composition of investment in Canada may, therefore, have contributed to the relatively low rate of growth of output, given the investment ratio experienced by that country over the 1950-1958 period. Similarly, at the opposite extreme the composition of investment in the Federal Republic of Germany has exerted some influence on the post-war experience of that country since its rate of growth of output was found to be one of the highest of all the industrial countries. However, when the ratios of the other industrial countries are considered, the value of the construction-equipment ratio as an explanatory factor is seriously reduced. It will be seen from table 1-8 that, among the industrial countries generally, no apparent association between the ratio of construction to equipment on the one hand and the investment-growth relationship on the other emerges from the data. This conclusion also holds true of the ratio of construction to equipment calculated in average European prices. It will be noted that in terms of average European prices, the construction-equipment ratio is relatively high for Italy and Norway and, it would appear reasonable to suppose, in Sweden as well. The high ratio in Italy reflects in part the extensive construction programme undertaken in the southern region of that country. In Norway the ratio is high despite the large volume of investment in transport equipment, especially shipping; this is due to even heavier outlays on power and highway construction. The magnitude of the ratio in Sweden reflects the relatively high share of public construction in total non-residential investment over the period under review.

Table 1-8. Average Composition of Gross Investment: Ratio of Construction to Equipment,[a] 1950-1958

(Equipment = 100)

Country[b]	*In national prices (1950–1958)*	*In European prices (average of 1950 and 1958)*
Germany (Federal Republic)	42[c]	33
Italy	68	109
Netherlands	58	45
France	60[c]	61
Canada	120	..
United States	103	59
Norway	53[d]	75
Belgium	61	23
Sweden	101	..
Denmark	44	44
United Kingdom	52	30

Source: United Nations, *Yearbook of National Accounts Statistics, 1959*, and earlier issues; Organisation for European Economic Co-operation, *An International Comparison of National Product and the Purchasing Power of Currencies*, by Milton Gilbert and Irving B. Kravis, and *Comparative National Products and Price Levels*, by Milton Gilbert and associates.

[a] Ratio of gross fixed capital formation in non-residential construction to machinery and equipment, both in constant prices.

[b] Countries are arranged in descending order of the rate of growth of output.

[c] 1950–1957.

[d] 1952–1957.

THE ABSORPTION OF TECHNICAL PROGRESS

So far, we have discussed a number of more or less quantifiable factors which may have contributed to the divergence in the investment-output relation among the industrial countries. These factors appear to have had some relevance to post-war experience in all the industrial countries, and although the magnitude of the influence of any single factor has varied from one country to another, their impact has generally fallen upon the physical quantity of durable assets, on the volume of output, or on their sectoral distribution. In addition,

however, there has been a most important, but much less readily measurable influence at work—the application of new advances in science and technology to the productive process.[13]

Vast sums are spent today on pure and applied research with the object of finding more efficient apparatus and methods to be applied to the process of production. While it is open to every country to stay abreast of the most advanced state of technological knowledge, the actual rate of absorption of technological advances will vary from country to country. Apart from environmental differences surrounding the process of innovation, the ability of any single country to absorb technological advances will depend directly upon the proportion of annual gross additions to the total stock of reproducible assets. Thus the inherent quality of capital is intimately tied to the annual volume of gross capital formation in relation to the existing stock since it is this proportion which affects the rate at which advances in technology and science are introduced into the productive process.

The measurement of the annual rate of gross addition to the capital stock is made difficult by the paucity of data on the total stock of capital in the industrial countries. Even among those countries for which stock estimates are available, inter-country comparisons can be made only with serious qualifications since, apart from differences in price structures, the estimating techniques employed and the coverage vary significantly from country to country. As a mere illustration of the orders of magnitude involved, however, the annual percentage rate of gross additions to the capital stock for the most recent year available[14] has been calculated for a number of industrial countries. The annual rate of gross additions to capital stock are shown in the following table for nine industrial countries, listed in alphabetical order.

Since the absorption of technical progress is more immediately relevant to machinery and equipment than to structures, the rate of additions to the former category of durable assets is also shown in the table for a number of industrial countries. The equipment ratio in every instance is seen to be higher than that for total fixed capital, mainly because the average length of life of producer durable goods is less than that of structures.

[13] Attempts have been made to measure the importance of technological progress in the growth of output, but both the economic theory and the statistical techniques underlying these efforts are the subjects of extensive controversy.

[14] Differences among the countries in the year for which the percentage ratio is calculated represent an additional source of difficulty in the inter-country comparison since the volume of fixed investment—the numerator of the ratio—may vary significantly from one year to another. Where the capital stock has been estimated by the perpetual inventory method, it has been possible to approximate the 1955 ratio for those countries where the original calculations are given for an earlier year. The extrapolated ratios do not, however, differ significantly from those which appear in the accompanying table.

Annual rate of gross additions to capital stock

Country	Year	Total fixed capital[a]	Machinery and equipment[b]
		(percentage ratio)	
Belgium	1950	7	9
Canada	1955	13	19
France	1954	6	
Germany (Federal Republic)	1955	12	
Japan	1955	12	
Netherlands	1952	7	11
Norway	1953	8	15
United Kingdom	1953	7	
United States	1955	8	15

Source: United Nations, *Yearbook of National Accounts Statistics, 1959;* International Association for Research in Income and Wealth, *The Measurement of National Wealth,* Income and Wealth Series VIII (London, 1959).

[a] Ratio of gross domestic fixed capital formation to net fixed reproducible capital stock.

[b] Ratio of gross investment in machinery and equipment to net stock of machinery and equipment.

The rate of gross additions to the total capital stock shown above varies from a low of 6 per cent per annum to a high of 13 per cent; the latter rate would, other things being equal, make it possible to absorb the benefits of technological progress twice as fast as the former. While, as noted above, these figures are subject to a substantial margin of error, a two to one range of variation does suggest a significant difference among countries in their ability to absorb this important element of economic growth.

The possible impact of such differences in the annual rate of gross additions to the total capital stock may be gauged by considering a purely hypothetical illustration. Let us assume that two countries, one with a rate of 13 per cent and the other of 6 per cent per annum, are suddenly confronted by the need to scrap and replace their existing capital stock in the shortest possible time. In the first country the total stock of capital could be renewed in a period of less than eight years, at the end of which time the average age of the capital stock would be four years. In the second country, on the other hand, the total replacement of the capital stock would require a period of roughly sixteen years at which time the average age of the capital stock would approximate eight years. The extreme values for the machinery and equipment ratios suggest similar conclusions.

Unreal as these hypothetical illustrations may be, the substantial difference between the age structures of capital stock that emerges from them serves to emphasize how important the annual rate of gross additions to capital might be. The difference between one capital stock that is four years old on the average and another that is eight years old is crucial from two points of view. On the one hand the relatively new capital stock will obviously embody much more of the latest technical progress than will the older stock. On the other hand the newer stock will be better adapted to the

prevailing pattern of demand, if there have been significant changes in that pattern in the course of time.

In effect, our hypothetical illustration is not, perhaps, as unrealistic as might appear at first sight. Several countries, such as the Federal Republic of Germany, Japan and Norway, were faced by heavy destruction of productive capacity at the end of the war and by the need to reconstruct in the shortest possible time. It has, for example, been noted that the Federal Republic of Germany and Japan were able to introduce modern techniques in the shipbuilding industry earlier than most other countries because of their need to reconstruct war-damaged plant and equipment.[15] These two countries and Norway were also among those with the highest investment ratios during the period under review, and it may be presumed that their present stock of capital has a relatively low average age and embodies modern design and technology in relatively high degree. This undoubtedly contributed to one of the major paradoxes of post-war growth in the industrial countries—namely, that countries which were hit hardest during the war are among those which have prospered most since the war.

THE CAPITAL COST OF OUTPUT

The foregoing discussion has shown that the rate of growth is not a unique function of the proportion of resources allocated to investment. A great many factors enter—in varying proportions in different countries—into the determination of the efficiency with which capital is used to promote economic growth. It is, nevertheless, useful to summarize the over-all impact of these various factors, acting jointly, in a single measure. This measure, commonly referred to as the incremental capital-output ratio, implies a concept of capital costs per unit of output analogous to the more familiar concept of incremental labour costs per unit of output. It is calculated by dividing the investment ratio by the rate of growth of output. The resulting quotient measures the number of units of new investment associated with each unit of over-all growth in output during the period concerned. The results of these calculations for both total gross fixed investment and gross fixed productive investment appear in the following table, along with the rate of growth of output over the period 1950-1958.

It will be seen that while for each country the magnitude of the incremental capital-output ratio in terms of total fixed investment differs from that calculated in terms of productive investment, the ranking of the countries is almost identical for both ratios. Furthermore, of all the industrial countries, it is the Federal Republic of Germany that has experienced the lowest productive incremental capital-output ratio, since for each unit of increase in output there were only 1.7 units of new productive investment, whereas in Norway, at the other extreme, the corresponding ratio was 7.0. In other words, the productivity of new capital during the period appears at first sight to have been approximately four times as high in the Federal Republic of Germany as in Norway.

Incremental capital-output ratio and rate of growth of output, 1950-1958

Country[a]	Incremental capital-output ratio		Growth of output (percentage per annum)
	Total fixed investment	Productive investment	
Norway	9.8	7.0	3.0
Denmark	7.3	5.4	2.3
United Kingdom	6.5	4.5	2.2
Sweden	6.9	4.1	2.9
Canada	5.4	3.6	4.0
Netherlands	4.9	3.2	4.5
Belgium	5.0	3.1	2.9
United States[b]	5.0	2.9	3.3
France	4.0	2.7	4.3
Italy	3.6	2.3	5.5
Japan	2.8	1.9	7.9
Germany (Federal Republic)	2.8	1.7	7.4

Source: Table 1-2.

[a] Countries are arranged in descending order of the productive incremental capital-output ratio.

[b] 1950-1959.

At the same time, the table suggests some relationship between the productive incremental capital-output ratio and the rate of growth of output, in the sense that, to some extent, high rates of growth and high productivity of new investment seem to go together. Clearly, the more efficiently a given volume of new investment is utilized, the greater will be the consequent flow of output. On the other hand, a high rate of growth is likely to have a beneficial effect upon several of the factors which help to raise the productivity of capital. The atmosphere of dynamism in the economy which accompanies a high rate of growth tends to attract new entrants into the labour force, as noted previously, to accelerate shifts of resources to rapidly expanding sectors, to encourage research and development and in general to promote the best adaptation of capital resources to both current and future demands.

There are clearly considerable differences between countries in the extent to which they have been realizing the potentials which they have for raising productivity and the rate of growth. Such differences have been due to a variety of causes but one of the most important of these has probably been the economic framework provided by government policy. It will be the object of the succeeding discussion to examine the relationship of government policies to investment and growth and, indeed, the participation of the government itself in the process of capital formation.

[15] United Nations, *Economic Survey of Europe in 1959* (sales number: 60.II.E.1), chapter I, page 31.

Investment policies of the government

THE APPROACH TO GOVERNMENT POLICY

The foregoing review of post-war experience has revealed important differences between countries in the level and pattern of investment. It has been pointed out that while these differences may not fully explain the rates of economic growth in various countries, the strategic role of investment in growth is unmistakable. It is through investment that new capacity for greater output is created and new technologies are introduced into the production process. It is through different rates of investment in various sectors that the structure of the economy is moulded and adapted to suit the varying requirements of growth.

As public policy becomes increasingly concerned with economic growth, the question arises as to the extent to which the level and pattern of investment can be, and has in fact already been, influenced by government policy measures.

In a predominantly private enterprise economy, it is not always clear what government policies are most relevant to investment, especially where the main function of public policy is conceived simply as the provision of a general framework within which private investment may be fostered. In that case, policies which are thought to inspire confidence and remove uncertainty are considered the most potent stimulus to investment, while measures designed specifically to influence investment in particular industries or localities may be relatively unimportant. Nor is the impact of a given policy always readily identified. Thus, under conditions of underemployment, policies for the stimulation of consumption may provide the most effective means for bringing a country out of a low-investment trap. On the other hand, under conditions of full employment the same policy may result in the diversion of resources from investment to consumption.

The difficulty of analysing the precise effects of government policies on investment does not imply by any means that policies to stimulate investment are difficult to find. If, in fact, the objective of growth is placed at or near the top of a governmental scale of priorities, the articulation of measures to bring about a high rate of investment should require no great innovation. Some such measures will be examined in a later section.

Perhaps the most striking feature of government economic policies in the post-war period, however, has been that the objective of economic growth, despite frequent mention by most governments, has not always been pursued with consistency of purpose. There has been a multiplicity of objectives, some of them complementing each other, while others have competed or conflicted with one another.

The usefulness of policy analysis sometimes lies not so much in prescribing what objectives should be pursued as in locating feasible ways whereby certain objectives can be attained without unduly sacrificing others. In this process an understanding of the interdependence of various objectives is essential. Thus, a more equal distribution of income may be an unassailable social objective in itself, but an intelligent decision on measures for its realization cannot be made without taking into account the possible impact on growth. For, apart from the fact that the achievement of an adequate rate of growth may be another social objective, it may in time tend to facilitate a more equal distribution of income.

Elements of complementarity or conflict also exist within the area of strictly economic objectives. The adoption by governments of the full employment target since the war is fully consistent with the objective of maintaining a high rate of growth. Indeed, full employment itself presupposes a rate of growth sufficient to absorb gains in productivity and the expansion of the labour force. It is also clear, however, that the full employment objective alone is inadequate as a growth objective, as has been indicated by the low post-war rates of growth in some of the countries which have adhered to this objective. In the first place, full employment is sometimes viewed as little more than an anti-cyclical short-run objective, involving principally the promotion of employment opportunities during recessions. A full employment policy is obviously consistent with a high consumption economy, and may indeed be facilitated by it if consumption is either less volatile than investment or more amenable to policy direction. In addition, a short-run full employment policy need not deal with fundamental problems affecting the structure of the economy or the mobility of resources, the solution of which may be essential for growth. Indeed, measures chosen solely with short-run employment objectives in mind may actually tend, in some circumstances, to delay structural adjustments that are highly desirable in terms of longer-run goals

If full employment is not adequate by itself as a growth objective, the maintenance of internal or external balance is even less sufficient. There can be no dispute that inflationary excesses may impede growth, or that a well-rounded growth policy will always include fiscal and monetary measures designed to achieve a non-inflationary balance between demand and supply. Yet it cannot be assumed that growth will always be forthcoming once price stability is assured. There is always the danger, in fact, that where price inflation is due to factors operating primarily on costs rather than on demand, policies of general restriction upon the economy may have only limited success in securing price stability —and that only at the cost of depressing the rate of growth.

Preoccupation with the problems of internal balance

has in many cases been prompted at least in part by considerations relating to the external balance. It is well known that there has been a fairly close relation between internal demand and external balance;[16] and the link between internal and external balance has been progressively strengthened as trade restrictions have been eased and convertibility of currencies approached. Several of the western European countries, notably the Scandinavian countries and the United Kingdom, have operated very close to the limit of their resources during much of the post-war period. Since their foreign exchange reserves were extremely low, any temporary increase in their own demand relative to that of other countries—or decline in external demand relative to demand at home—was apt to bring about a foreign exchange crisis, which was rapidly compounded by speculative capital movements reflecting a drop in confidence. Investment was usually among the first items of domestic expenditure to be curbed in such circumstances. While this measure usually had the desired result, sooner or later, it clearly involved a conflict with longer-run goals—even from the point of view of balance of payments equilibrium. For the curtailment of capital expansion had its effect upon long-run exportable supplies as well as upon short-run import demand, and this was crucial, especially where the inability to supply goods for export was reflected in long order books and protracted delays in deliveries. More recently such phenomena have become less common in western Europe, but it is still too soon to say how far this is due to a fundamental improvement in the situation or how far it is merely the accompaniment of a slower rate of growth than had been customary in the earlier post-war years.

It is perhaps inevitable that most other economic objectives have also been predominantly short-run, if only because of the rapid tempo of events and the enormous pressure of day-to-day decisions upon those responsible for policy-making. In retrospect, the post-war years have seen a succession of crises of one sort and degree or another for most industrial countries. Government policies have been preoccupied with the acute problems attendant upon reconversion and readjustment in the immediate post-war years, with the exchange crisis towards the end of the nineteen forties, with the emergency of the Korean conflict, and with rearmament during the subsequent increase in international tension. Interspersed with problems of crisis proportions have been constant threats of inflation and balance of payments disequilibrium. In such circumstances it is not, perhaps, surprising that the objective of growth has often been relegated to the background.

It is true that official statements by governments stressing the need to encourage investment are not difficult to find. Yet consistent policies for the promotion of investment have been comparatively rare. For governments have been prepared to take a definite stand on the relative emphasis to be placed on investments compared with consumption. Meanwhile, measures to promote investment frequently coexist with other measures which tend to discourage it.

If there have been few deliberate and consistently maintained government policies for investment, this does not mean that governments have had no *de facto* investment policies. The weight of the government in the economy is so great, and the impact of its decisions is so far-reaching, that investment is inevitably much influenced by the government, whether intentionally or not. Perhaps the outstanding example of a policy whose effect on investment has hardly been intended is the stimulus to agricultural investment resulting from government support of farm prices at high levels. In fact, the stimulus to investment has been so strong that deliberate measures for reducing production, such as acreage restrictions, have frequently been frustrated.

Despite the absence of clearly defined governmental investment policies in many countries, it is possible to discern certain general tendencies and point to possibilities for future action. The approach to governmental investment policy in the centrally planned economies is to devise a comprehensive programme in which the exact level and pattern of investment over a number of years and the methods of implementation are set out in full. This approach is obviously not applicable in the private enterprise countries where a large share of investment remains under the control of the private sector. The closest approximation to such comprehensive programmes is to be found in the immediate post-war years, and during the Korean conflict, when investment in particular sectors in a number of countries had to be restrained and various priorities were established and enforced by systems of direct controls. Such direct controls were regarded as temporary expedients to be removed as soon as emergency conditions were over.

Comprehensive long-term investment programmes have been formulated in a number of countries, notably in France, Italy and Japan. These, however, are largely in the nature of desirable or feasible targets for policy reference rather than definite operative programmes with the full force of administrative implementation. The main advantages of such long-term programmes have been that they have helped to give a sense of direction to long-term policies and to enhance the flexibility of short-term policies; they have been instrumental in providing a general setting for expansion and specific adjustments for correcting sectoral imbalance.

The value of comprehensive long-term programmes in clarifying and guiding the direction of policy stems from the fact that it obliges the policy-maker to look forward beyond immediate daily requirements and to come face to face with the need to determine priorities within a multiplicity of plausible targets. It is some-

[16] See the evidence presented in United Nations, *World Economic Survey, 1956* (sales number: 1957.II.C.1), pages 43 to 53.

times feared that such a programme may imply a high degree of government control, and conversely, that its usefulness may largely be limited to cases where government control is pervasive. This probably explains why the interest in comprehensive long-term programmes has not been more widespread and why interest in fact waned during the nineteen fifties in some countries as measures of direct control had already been largely discarded. It is evident, however, that a comprehensive long-term programme does not in itself necessitate any particular degree of government control and that it is instead compatible with a variety of political and social assumptions. The consistency of such a programme with the workings of a predominantly private enterprise economy, and even with a liberal orientation of policy, has been amply demonstrated by the French and, in particular, the Italian and Japanese cases.

The usefulness of long-term programmes, whether comprehensive or not, to increase the flexibility of short-term policies is no doubt less apparent. A common concern has in fact been that long-term targets may become obsolete rapidly as time passes. Some of the projections made in the Scandinavian countries, as well as elsewhere, during the early post-war years, have deviated so far from subsequent events as to arouse the gravest doubts regarding the practical use of such exercises. This experience points clearly to the need for constant review of long-term targets as has, indeed, been stressed by the French programme. However, if the uncertainty of the future precludes rigid adherence to a predetermined programme, it does not necessarily provide an argument against the formulation of comprehensive long-term programmes as such. Indeed, such programmes can be used to remove part of the uncertainty surrounding the future if any degree of success at all is achieved in their implementation. In a more positive way, a long-term programme may actually contribute to the flexibility of policy instruments, and may constitute a prerequisite for the successful implementation of short-term programmes. The use of public investment for stabilization purposes, for example, is beset with the difficulty that while it is possible to curtail such investments, it is often impossible to augment them at short notice when required. The selection of appropriate projects, the actual preparation of blueprints, and the setting up of administrative machinery are usually time-consuming. Delays of this sort could be avoided at least to some extent by advance programming. This principle has been recognized particularly in the Austrian long-term public investment programme of 1954 to 1963.

In so far as a long-term programme usually postulates a certain rate of growth,[17] it tends to provide a favourable general setting for expansion. This general setting is more than a purely passive factor; it may help to raise the sights of all concerned. Owing to the interdependence of the economy, a programme for expansion in one sector presumes certain rates of expansion in others. The consultations which this interdependence brings about, and the quest for consistency by public officials and private businessmen alike—as in the formulation of the French programme—are likely to exert a favourable influence upon the rate of growth. This influence will be all the greater the more seriously the private sector regards the intentions of the government; where the government undertakes vigorous implementation of the programme, the private sector will not be slow in reacting, and may even try to anticipate the impact of government policy, thereby stepping up the rate of growth even before government measures have begun to take effect.

To the extent that expectations are nevertheless imperfect, imbalances or bottlenecks may, of course, develop. The speedy discovery of such imbalances may provide the occasion for new policy measures: the shifts of priorities among different sectors in the successive French and Italian programmes are to be understood in the light of the need for changing structural adjustments in a growing economy.

Closely related to the system of comprehensive long-term programmes is the technique of programming by national budgets as practised in the Scandinavian countries and the Netherlands. Here the emphasis has clearly been short-term. This has partly been the result of the sensitivity of these countries to external forces, the expansion of investment being constantly subjected to constraint for balance of payments reasons. Indeed, because of this preoccupation with short-term considerations, attention has often focused on areas other than investment. In the Netherlands, for example, problems of short-run stability have been handled through a large variety of policy measures affecting many sectors of the economy, based upon a detailed analysis of a quantitative model.

The main advantage of the national budget approach is the explicit recognition of the proper function of the budget as an instrument of policy. As a result, budgets

[17] The annual rates of growth contemplated in the long-range economic plans or programmes in France, Italy and Japan and the rates realized were as follows:

Country and period	*Rate of growth of gross domestic product (percentage per annum)*	
	Target	*Realized*
France		
1949 to 1952	4.8	5.0
1952 to 1957	4.5	7.5
1956 to 1961	5.0	3.4 (1956 to 1959)
Italy		
1954 to 1964	5.0	5.4 (1954 to 1958)
Japan[a]		
1954 to 1960	5.0	8.3 (1954 to 1959)
1957 to 1962	6.5	8.3 (1957 to 1959)

[a] Fiscal year beginning 1 April.

have largely been determined by the requirements of policy objectives rather than by age-old rules of thumb. Furthermore, an attempt has been made to quantify the application of policy measures, although the determination of interactions in the economy on the basis of existing data is necessarily subject to a large degree of uncertainty.

The absence of comprehensive long-term investment programmes in most industrial countries has not precluded a more modest approach to investment policy, especially where the development of particular regions or industries is concerned. As is well known, even in highly developed countries there exist some regions which are under-developed or depressed. The rationale of policies to assist such regions or industries involves much more than the need to tide over temporary local difficulties. In the first place, an under-developed region is not synonymous with a region barren in natural resources. The history of the development of the west in Canada and the United States is a familiar reminder of this point. It will also be recalled that deliberate policies by governments to assist in providing a network of transport and other facilities played an important role in this development. In addition, the development of certain natural resources may require an integrated approach such as only a government is in a position to provide. Thus the development of the Tennessee Valley, the St. Lawrence River and the Rhône Valley proceeded far beyond normal administrative boundaries and embraced a multiplicity of functions including flood control, irrigation, water supply, power generation, transportation and soil conservation.

Most regional development programmes have not, however, been motivated primarily by the existence of specific untapped or under-developed natural resources. Of greater concern has been the high degree of concentration of population and industry in certain cities and surrounding areas, combined with deterioration and decay in other parts of the country. It has been recognized that a better balanced economic development may not be forthcoming without deliberate efforts to make the declining areas attractive to investment. At the same time it has become apparent that resources should not be spread too thinly throughout entire regions; and that an effective regional strategy may therefore require the establishment of a number of new centres or "poles" of development, as they have become known in France, each sufficiently strong and dynamic to provide a focal point of expansion for its particular area. The great emphasis on the development of the south of Italy is an example of such efforts in regional development, as is the creation of development zones in France. In somewhat more modest form, the establishment of development areas in the north-west of Belgium, in the less industrialized regions of the Netherlands, in the north in Norway, and in areas with relatively high unemployment in the United Kingdom, provides further illustrations of this approach.

In analogous fashion, programmes for the development of particular industries are often guided by the concept that not all industries develop equally, but that some particular industries must lead the way. On the other hand, a case for government intervention may be made out on the grounds of exceptional depression in particular industries.

Widespread recognition has been given to the role of government in the development of "social overhead" facilities or "infrastructure". Mention has already been made of the strategic role of the government in Canada and the United States in initiating a strong impulse to economic expansion by providing basic facilities during the earlier phases of development. Even today, such new channels of commerce as the flow of Canadian iron ores in large quantities to mills in the United States would not have been economical without the facilities opened by the St. Lawrence Seaway. One advantage of government development of social overhead facilities is that it becomes possible to look ahead and, if necessary, to plan deliberately for excess capacity. This may be more economical in the long run especially when the rate of growth is expected to be rapid. Thus, it is not uncommon to design a bridge with explicit allowance for future growth of traffic or a water supply system capable of being adapted to meet the growing demands of urbanization. Careful planning of urban sites and traffic arteries in anticipation of growth may save great waste in relocation and demolition in the future.

The contribution to growth through the development of social overhead facilities should, therefore, be viewed in the light of the strategic forces of propulsion thereby generated for the economy as a whole. In this connexion it should be noted that the relatively high capital-output ratios usually reported for such investment do not in any way imply any inefficiency in contributing to the growth process and should certainly not be used as an argument for assigning a low priority to them in a development programme. The availability of adequate basic facilities may make all the difference between high and low productivity in other industries.

In practice, the provision of such facilities has often been viewed as highly postponable and has had to make room for other claims upon resources, notably during the Second World War and the Korean conflict, and even during periods of inflationary pressure or balance of payments difficulties. Because of the many crises of one type or another which countries have had to face during the past thirty years, there has been a general tendency to restrain social overhead investment. As will be indicated further below, the time may now have arrived when the opportunity of reduced pressure upon resources could be utilized to encourage such investment with a view to the promotion of growth for the economy as a whole.

If government strategy is concentrated on the provision of basic facilities, it is on the assumption that

other industries will more or less take care of themselves when the general framework is favourable. Some governments, however, have gone beyond this to promote the development of certain manufacturing industries frequently identified with the dynamic process of growth. These are the industries which have been most closely connected with modern technology and which have experienced high rates of growth in output and productivity. Despite the high level of industrial development already achieved in western Europe, a number of countries such as Denmark, Italy, the Netherlands and Norway have continued to view industrialization as a pillar of developmental policy, and have introduced industrial research and training programmes, special subsidies, tax reliefs and other measures to that end.

The long-run justification for pouring resources into declining industries may be less apparent. Even here, however, it cannot be assumed that investment in such industries will always be wasteful, especially if one of the causes of decline is a lack of new investment. This is akin to the problem of depressed areas discussed previously. Thus the competitive position of railways cannot be restored or strengthened without modern equipment; and similar considerations apply to the coal industry in Belgium or the textile industry in the United Kingdom. Programmes for the revitalization of these industries have, therefore, inevitably involved large-scale investments alongside measures to reduce over-all capacity, where necessary.

Thus far the discussion has dealt with the general contours of governmental investment policy and particularly the similarities and differences in broad approach to such policy adopted by various governments. A closer examination of investment policy, however, requires separate discussion of the public and private sectors of the economy, since the considerations applying to each are rather different. While the government is in a position to channel resources to investment in either sector, the government must, in influencing private investment, rely heavily on inducements and incentives rather than on detailed directions such as are possible in the public sector.

The following discussion will deal first with policies affecting public investment in general government as well as in public enterprises;[18] here the scope of the subject is clear. The scope of public policies affecting private investment, on the other hand, is more difficult to define. As mentioned above, it is not necessarily those measures which are designed to affect investment directly that are the most significant. For example, government purchases of current goods and services inevitably affect the size and direction of private investment. In particular cases, such as the aircraft industry, most of the product line and design may be dominated by the government. Moreover, the list of government policies which may have a significant impact on investment may be extended to include the whole complex of government activities. At the same time, the impact of particular policies can be isolated only with the greatest difficulty—if at all. The following discussion will concentrate attention on a few government policies which are fairly directly related to investment in the long run and which are likely to be considered by governments as possible instruments if an active policy to promote or redirect investment is pursued.

PUBLIC INVESTMENT AND POLICY

In the majority of industrial countries the share of the public sector in total fixed investment amounts to approximately one-third, although in Sweden and the United Kingdom it is in the region of 40 per cent and in the United States under 20 per cent, as shown in table 1-9. The share of general government varies from 10 to 17 per cent; and the share of public enterprises has a considerably larger range, being less than 3 per cent in the United States, and over 20 or 30 per cent in France, Sweden and the United Kingdom.

There appears to be no systematic association between the share of the public sector in investment and the growth rate of total product or total investment; nor does a high share of public investment in total investment imply a high ratio of total investment to total output.

The relationship of public capital formation to public consumption expenditures is shown in chart 1-4.[19] This ratio generally ranges from one-third to one-half, although it is less than one-sixth in the United States and as high as four-fifths in Norway. The fact that those countries where public investment is large, such as Sweden and the United Kingdom, do not necessarily show a high ratio of public capital expenditure to public current expenditure is due to the high level of expenditure in the latter category as well.

A comparison with pre-war figures suggests a general long-term tendency for the share of the public sector in fixed investment to increase, as may be seen in table 1-9. In countries such as France and the United Kingdom where there has been substantial nationalization of in-

[18] The definition of the public sector used here corresponds to that in the national accounts and includes general government, government enterprises and public corporations. General government comprises government agencies, whether central, state or local, which undertake functions other than trading activities; the latter are included in government enterprises. Public corporations include corporations formally established by public law as well as private corporations under the control of public authorities. For the purpose of the present discussion government enterprises and public corporations are grouped together under public enterprises. For further details, *see* United Nations, *A System of National Accounts and Supporting Tables* (sales number: 59.XVII.11), pages 10 to 11.

[19] Public consumption represents current expenditures on goods and services (not including subsidies and current transfers) undertaken by general government. The same chart also shows for purposes of comparison the ratio of public fixed capital formation to general government current expenditures (including subsidies and current transfers) and the ratio of general government fixed capital formation to general government consumption or current expenditure.

Chart 1-4. Ratio of Public Investment to Public Current Expenditures

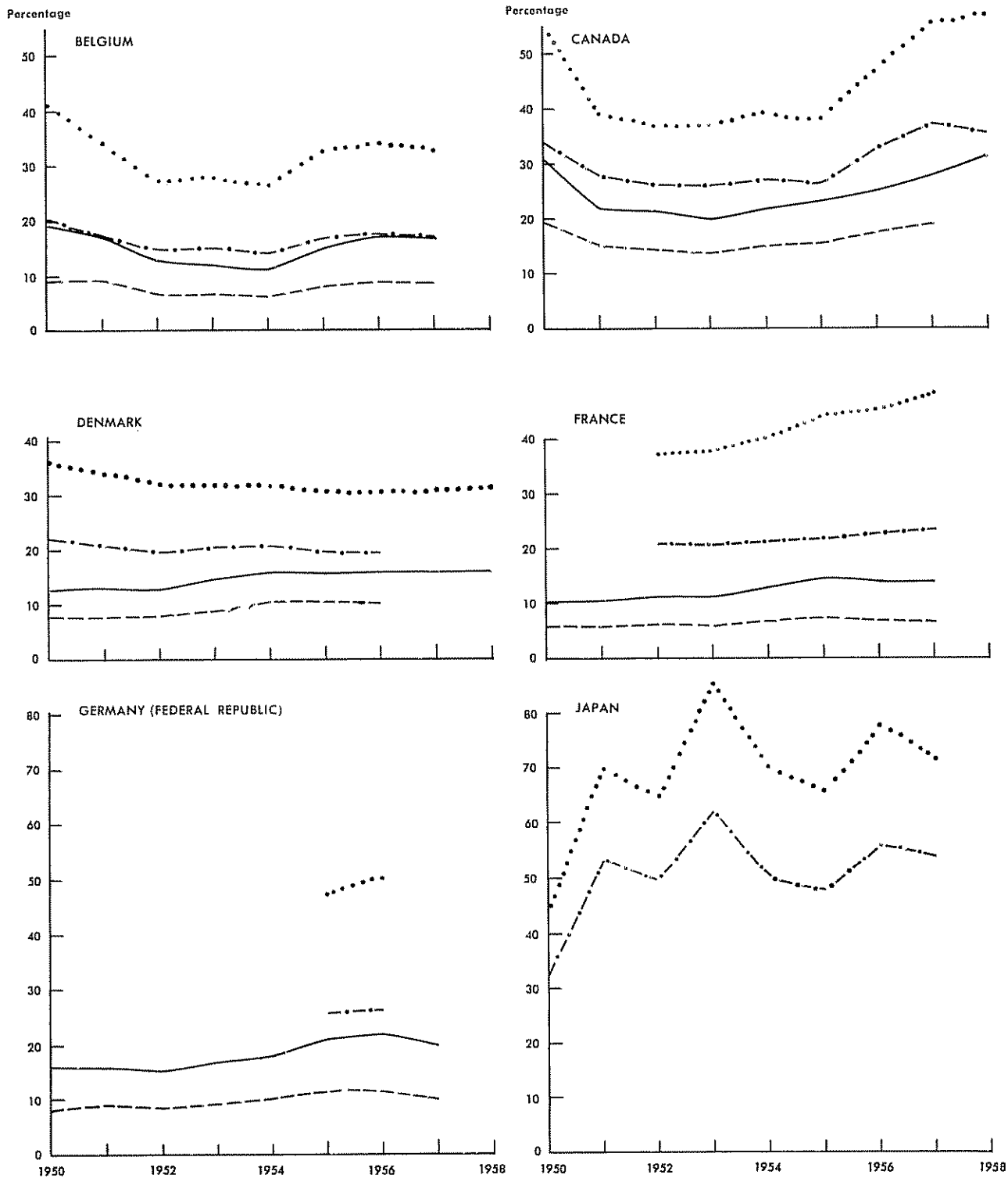
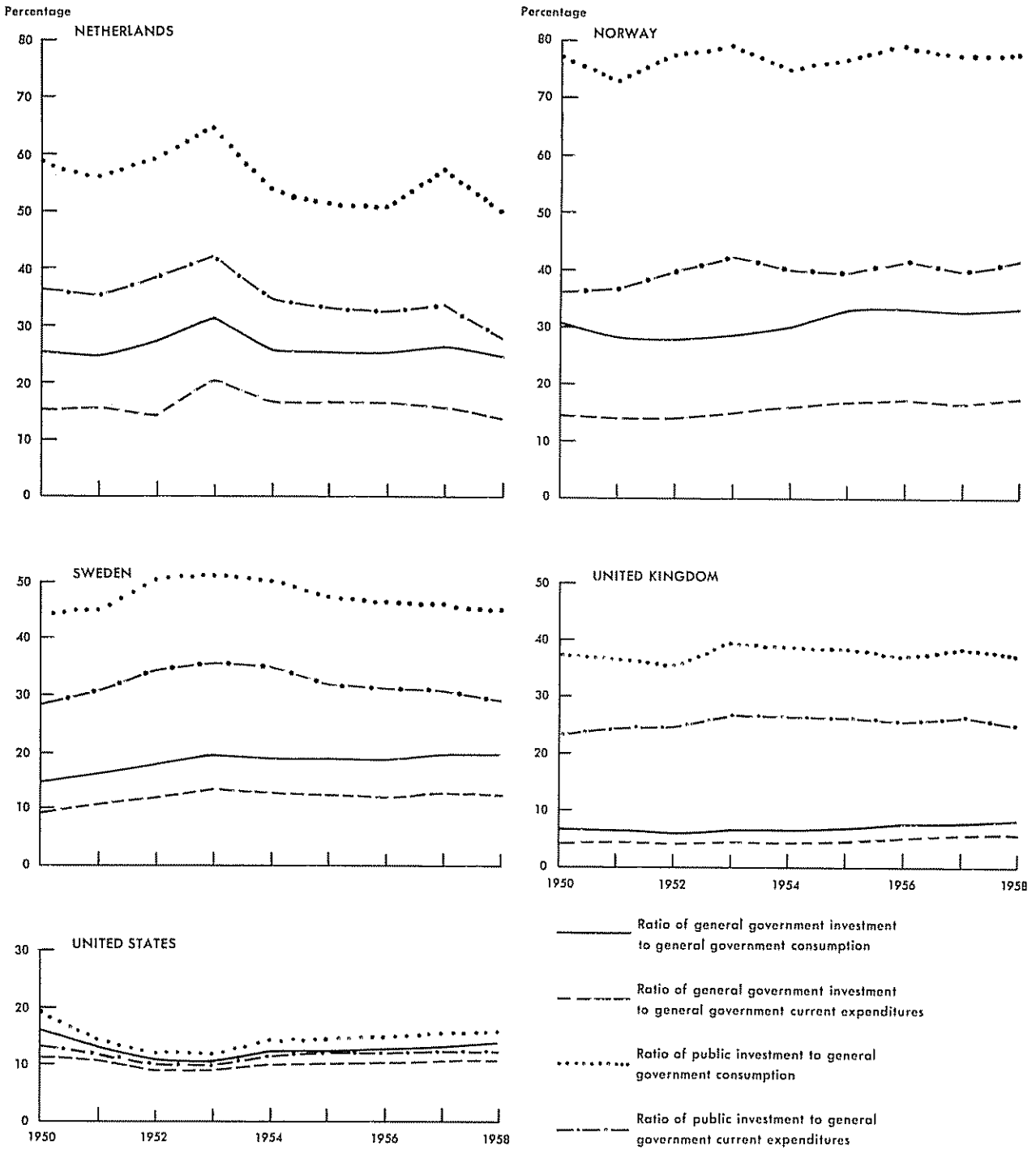


Chart 1-4. Ratio of Public Investment to Public Current Expenditures (*continued*)



Source: Table 1–10.

Table 1-9. Share of the Public Sector in Gross Domestic Fixed Investment

(Percentage)

Country and item	1938	1950	1951	1952	1953	1954	1955	1956	1957	1958
Belgium										
Public sector, total	...	25.9	26.6	24.0	24.4	21.5	23.5	22.1	19.9	21.3
General government	...	12.0	14.1	11.3	11.0	9.4	11.2	11.1	10.4	9.9
Public enterprises	...	13.9	12.5	12.7	13.4	12.1	12.3	10.9	9.5	11.4
Canada										
Public sector, total	30.1	25.3	24.0	25.1	24.1	26.2	24.6	25.8	28.7	31.7
General government	21.7	14.3	13.3	14.2	12.8	14.5	14.7	13.7	14.6	17.2
Public enterprises	8.4	10.9	10.8	10.9	11.3	11.6	9.9	12.1	14.1	14.6
Denmark										
Public sector, total	...	22.2	21.9	21.1	21.5	21.7	23.1	23.3	22.8	24.0
General government	...	8.1	8.5	8.5	9.8	11.1	12.3	12.5	11.9	12.2
Public enterprises	...	14.2	13.4	12.5	11.7	10.6	10.8	10.8	10.9	11.8
France										
Public sector, total	16.0	...	...	34.1	36.8	36.4	35.0	36.9	36.1	34.3
General government	10.0	9.0	8.8	10.7	11.1	11.7	11.8	11.9	11.2	9.6
Public enterprises	6.0	...	...	23.5	25.6	24.7	23.3	25.1	24.9	24.7
Germany (Federal Republic)										
Public sector, total	...	...	...	...	...	...	29.1	29.1	...	...
General government	...	12.7	12.9	13.0	13.0	12.8	13.1	13.1	12.7	...
Public enterprises	...	...	...	...	...	...	16.0	16.0	...	...
Italy										
Public sector, total	...	...	...	...	...	35.4	31.8	29.6	29.2	...
General government	7.8	11.5	11.5	13.6	15.6	14.2	13.1	10.9	10.8	12.7
Public enterprises	...	...	...	...	...	21.2	18.7	18.7	18.4	...
Japan										
Public sector, total [a]	16.4	29.6[b]	32.4	35.8	38.8	38.3	40.9	33.7	28.7	31.9
General government	...	...	...	...	...	27.5	28.0	21.3	17.0	...
Public enterprises	...	...	...	...	...	10.8	12.9	12.4	11.7	...
Netherlands										
Public sector, total	...	36.5	38.2	43.7	43.5	36.7	33.0	30.7	34.0	31.7
General government	16.7	15.9	16.9	16.2	21.3	17.4	16.0	15.4	15.7	15.7
Public enterprises	...	20.6	21.4	27.4	22.3	19.3	17.0	15.2	18.4	16.0
Norway										
Public sector, total	20.2	21.2	21.7	23.5	24.9	23.0	21.7	23.9	23.5	22.9
General government	10.0	8.4	8.3	8.4	9.0	9.2	9.5	10.1	9.9	9.8
Public enterprises	10.2	12.7	13.4	15.1	15.9	13.8	12.2	13.8	13.6	13.1
Sweden										
Public sector, total	24.4[c]	33.0	34.7	41.4	42.0	40.2	39.9	39.3	40.4	38.8
General government	15.6[c]	11.2	12.5	14.7	15.9	15.2	16.0	15.7	17.2	17.0
Public enterprises	8.8[c]	21.7	22.2	26.7	26.1	25.0	23.9	23.6	23.2	21.8
United Kingdom										
Public sector, total	30.3	46.5	49.8	52.5	53.2	49.2	45.0	43.1	42.4	41.1
General government	10.7	8.1	9.2	8.9	8.7	8.3	8.0	8.5	8.7	9.0
Public enterprises	19.7	38.4	40.6	43.6	44.4	40.9	37.0	34.6	33.7	32.1
United States										
Public sector, total	30.6	13.2	14.6	15.1	14.8	15.9	14.7	15.0	16.1	18.7
General government	26.1	11.6	12.8	13.3	13.0	14.0	12.8	12.7	13.8	16.2
Public enterprises	4.5	1.6	1.8	1.7	1.8	1.9	1.9	2.2	2.3	2.5

Source: United Nations, *Yearbook of National Accounts Statistics*, various issues, predecessor publications; and national sources. For definition, *see* footnote *18*.

[a] Includes increase of stocks of government enterprises and public corporations for 1950 and stocks of local government enterprises for 1951 to 1957.

[b] Fiscal year beginning 1 April.

[c] Fiscal year beginning 1 July.

dustries, this tendency is easily understood. In countries where there has been little or no nationalization, the trend is less certain. However, in view of the fact that the share of the public sector is rather sensitive to the level of business activity, data for the nineteen thirties cannot be regarded as typical of the pre-war period, having been strongly influenced by a low level of private investment and a high level of public works for relief purposes. The long-term tendency for the public sector's share in investment to increase is, therefore, revealed for Canada and the United States only when the figures are carried back to the nineteen twenties. In Japan, on the

other hand, the rise in the share since 1938 reflects the fact that public investment was relatively low in the late nineteen thirties as compared with the nineteen twenties.

During the post-war period the share of the public sector in investment has generally been fairly stable or in some cases has declined.[20] The share of the general government alone has been stable, on the whole, except in Belgium, where it has declined, and in Denmark and Sweden, where there have been considerable increases. A notable case of a recent decline in the share of public investment is in the United Kingdom where a downward trend is visible after a peak was reached in 1953. This was accompanied by a decline in the role of public enterprise, especially in residential building.

From the point of view of public policy, a relatively large share of the public sector in total investment implies a corresponding degree of responsibility for direct investment decisions. This responsibility is, however, usually a divided one, and many different authorities may be involved. The degree of central government control over investment decisions by local authorities and public enterprises varies in accordance with institutional arrangements as well as with personality factors. On the other hand, government control may extend well beyond the public sector especially where public financing is involved; a striking example is housing, where the government may exercise major influence through provision of finance, even though public construction may be negligible.

The distribution of investment between the central government and the local authorities is shown in table 1-10. In a number of countries where the central government is dominant, the central government share

[20] The increase in the share shown in some countries in 1958 was due to the decline in private investment and larger public works accompanying the recession in that year.

Table 1-10. Share of Central Government in Public Gross Domestic Fixed Investment
(Percentage)

Country and item	*1938*	*1950*	*1951*	*1952*	*1953*	*1954*	*1955*	*1956*	*1957*	*1958*
Belgium[a]										
Public sector, total	...	*57.2*	*53.5*	*53.7*	*51.0*	*45.9*	*46.3*	*56.5*	..	..
Canada										
Public sector, total	*31.6*	*23.7*	*31.0*	*36.4*	*33.9*	*29.7*	*26.9*	*30.4*	*32.3*	*32.4*
Denmark[b]										
General government	...	22.3	20.2	13.5	17.0	17.4	14.5	15.8	19.7	.
France										
Public sector, total	..	...	..	.	.	*40.6*	*42.3*	*41.8*	*41.6*	.
General government	50.0	...	...	..	31.4	23.6	27.0	28.8	25.3	.
Public enterprises	...	...	...	...	...	48.7	49.8	48.6	49.0	...
Germany (Federal Republic)										
Public sector, total	..	*10.9*	*14.4*	*12.6*	*12.5*	*10.4*	*12.3*	*13.5*	*13.8*	.
Italy										
Public sector, total	...	...	...	...	...	...	...	...	*75.0*	..
Japan										
Public sector, total	*77.7*	*59.8*	*67.8*	*65.0*	*64.0*	*57.0*	*63.4*	*63.9*	*63.3*	..
General government	...	...	...	...	...	46.5	53.1	50.7	47.9	...
Public enterprises	...	...	...	...	...	84.3	85.7	86.6	85.6	...
Netherlands										
General government	..	37.6	39.4	48.2	34.4	36.5	32.8	32.5	33.6	37.2
Norway[c]										
Public sector, total	*54.4*	*47.5*	*50.3*	*49.6*	*48.1*	*51.0*	*45.5*	*47.9*	*48.4*	*50.1*
General government	40.1	32.1	32.1	35.5	36.1	...	...	...	...	.
Public enterprises	68.3	57.7	61.6	64.4	68.2	.		.	..	..
Sweden										
Public sector, total[d]	*50.3*	*42.5*	*41.5*	*47.1*	*45.8*	*41.0*	*38.8*	*41.4*	*39.3*	*41.2*
General government[d]	32.0	32.3	35.9	38.1	38.7	34.3	26.4	31.5	31.8	31.1
Public enterprises[d]	82.5	46.9	43.8	51.4	49.7	44.4	45.7	47.5	44.0	48.3
United Kingdom										
Public sector, total	...	*48.5*	*49.9*	*49.3*	*50.0*	*53.4*	*56.8*	*56.8*	*58.8*	*61.8*
General government	...	26.1	23.7	22.1	22.0	23.1	21.9	20.6	22.4	26.0
Public enterprises	.	53.2	55.8	54.9	55.6	59.6	64.4	65.7	68.2	71.9
United States[a]										
Public sector, total	*19.5*	*18.1*	*18.2*	*19.1*	*16.7*	*11.2*	*8.8*	*9.5*	*11.0*	*12.5*

Source: United Nations Division of General Economic Research and Policies

Note: Figures represent the percentage share of central government in gross fixed capital formation in the public sector, general government or public enterprises, when available.

[a] Construction only.

[b] Fiscal year beginning 1 April; excluding road construction.

[c] Including repair and maintenance.

[d] Fiscal year beginning 1 July.

ranges from about 40 to 60 per cent—or even more—of fixed investment in the public sector. Where the form of government is federal, the share is lower, being about one-third in Canada and about one-eighth in the United States and the Federal Republic of Germany. However, these proportions understate the role of the central government, since in most countries a sizable share of local capital expenditure has been financed by the central government—frequently on conditions that certain specific requirements were fulfilled. In a large number of cases prior approval by the central government is necessary even when the financing is through the open market. In the case of the United States, although state and local government financing of capital expenditure in the open market is not controlled by the federal government, the severe limitations on debt generally imposed by state and local constitutions and the need to be competitive with other localities as regards tax rates provide a strong incentive to obtain federal grants for capital financing.

The pattern of public investment varies greatly among countries, as may be seen in table 1-11 for a number of countries for which data are available. Differences in the distribution reflect largely the relative share of public enterprises. A notable feature of the pattern is that even in those countries where the relative share of public enterprise is high the public sector has not gone into industry to any great extent, beyond public service or basic industries such as transport, communications and power and water.

The relative weight of public investment is also reflected in the share of such investment by types of capital goods, shown in table 1-12. The share of government in construction is much larger than in equipment,[21] owing to the importance of public investment in roads and buildings. In some countries, the government has a very large share in residential construction. The role of the government in housing is nevertheless understated since public financing or subsidizing of residential construction is usually more important than direct public construction.

[21] If military construction were included in public investment the government share in construction would be shown as even larger. In some cases it has not been possible to exclude all military expenditure from public investment.

General government

The general government sector provides for all the basic public services which have traditionally been regarded as falling within the proper scope of government, as well as certain others added more recently. The pattern of general government investment—the relative importance of general services, community services and social services[22]—is presented in table 1-13. The share of general services is comparatively small in most countries, while community services predominate. In a number of cases community services have accounted for more than one-half of general government investment, and have reached as high as seven-tenths in the Netherlands, reflecting the significance of road-building and waterways. In the United Kingdom, the share of community services appears to be exceptionally low despite a noticeable tendency to increase during the nineteen fifties; the main explanation appears to be the low level of road-building in that country.

While community services such as fire protection, water supply and sanitation generally fall within the classical functions of government and are largely undertaken by local authorities, public policies for road-building are subject to considerable controversy. This is because road transport is in keen competition with other modes of transport, particularly railways. In most western European countries and Japan, where rail transport is publicly owned but road transport remains in private hands, the question arises whether the public sector has a vested interest which might prejudice in-

[22] General services include general administration, defence, justice and police; community services include roads and waterways, fire protection, water supply and sanitation; social services include education, health, social security and special welfare services. For details, *see* United Nations, *A Manual for Economic and Functional Classification of Government Transactions* (sales number: 58.XVI.2), pages 37 to 40; 144 to 156.

Table 1-11. Pattern of Public Investment, 1950-1958
(Percentage of public gross domestic fixed investment)

Country	*Housing*	*Schools*	*Hospitals*	*Other social buildings*	*Transport*	*Communications*	*Power and water*	*Other industries*
Denmark	3.6	12.4	5.8	...	29.2	13.9	22.7	1.6
Japan	4.0	5.2	0.3	...	40.0	8.8	10.0	8.5
Norway[a]	...	7.5	3.8	1.9	30.8	6.1	35.4	9.8
Sweden	16.2	10.0[b]	...	6.1[c]	20.4[c]	7.7[c]	14.6[c]	4.6[c]
United Kingdom	31.3	6.9	1.7	...	—— 17.4 ——		25.1	10.0
United States	5.1	21.0	4.4	...	37.4	—— 12.9 ——		2.5

Source: United Nations Division of General Economic Research and Policies.

Note: Figures represent arithmetical averages for the years 1950 to 1958, except for Japan where figures refer to the fiscal year beginning 1 April 1957. Percentages do not necessarily add to 100 because of incomplete information.

[a] Including repairs and maintenance.
[b] Schools and churches.
[c] Excluding local government enterprises.

Table 1-12. Share of Public Investment in Selected Types of Capital Goods
(Percentage)

Country and item	1938	1950	1951	1952	1953	1954	1955	1956	1957	1958
Belgium										
Construction		33.2	35.8	34.4	31.4	29.6	31.3	32.0	32.2	...
Machinery and equipment		16.1	15.5	14.5	17.0	16.9	23.0	16.8	17.3	...
Canada										
Construction		33.0	33.8	37.1	33.5	32.9	32.9	34.3	37.1	37.3
Residential		6.1	6.0	5.4	3.4	1.5	1.7	1.8	2.7	2.2
Machinery and equipment		14.6	17.0	17.5	17.6	19.4	13.8	15.1	16.0	19.8
Denmark										
Buildings		20.5	20.6	20.7	21.0	21.8	24.7	23.4	23.1	24.3
Residential		6.7	6.2	4.3	3.8	4.4	5.2	5.2	4.3	5.1
Germany (Federal Republic)										
Construction, residential		43.9	47.1	43.1	35.3	33.6	27.6	27.0	27.8	.
Japan[a]										
Construction					52.8	50.8	50.1	46.8	47.7	49.4
Residential								22.6	26.9	24.8
Machinery and equipment					19.9	15.8	24.8	17.5	13.8	22.9
Sweden										
Construction	27.0[b]	43.1	46.6	51.9	52.6	50.8	50.4	48.8	50.0	49.0
Residential	1.8[b]	22.5	26.8	25.9	25.4	26.3	25.7	23.9	25.1	22.8
Non-residential	52.4[b]	60.1	61.2	68.1	69.8	67.3	66.6	65.4	66.8	65.8
Machinery and equipment	19.1[b]	19.0	18.7	25.4	24.2	21.7	18.0	21.8	22.8	20.1
United Kingdom										
Construction		66.2	69.3	70.5	68.6	62.0	55.6	52.5	53.1	51.3
Residential		84.6	84.6	79.8	73.0	65.4	58.5	54.8	53.0	47.0
Non-residential		53.1	57.9	62.3	63.8	58.7	53.3	50.9	53.2	53.7
Plant and machinery		33.1	40.5	45.3	47.7	45.8	42.9	40.6	37.4	37.7
Vehicles, ships and aircraft		27.6	25.6	22.9	23.4	19.9	22.0	25.8	29.2	26.2
United States										
Construction	48.5	21.3	24.1	24.5	24.0	24.3	22.3	23.7	25.6	27.5
Residential	1.7	2.3	4.3	4.5	3.7	2.0	1.3	1.6	2.8	4.3
Non-residential	46.8	31.4	31.6	32.6	30.9	31.6	29.9	28.0	28.6	31.3

Source: United Nations Division of General Economic Research and Policies.
[a] Fiscal year beginning 1 April.
[b] Fiscal year beginning 1 July.

vestment in roads. In the United States, where both rail and road transport are in private hands, the fact that roads are constructed with public money raises the question of veiled subsidies to road transport. Public authorities have, therefore, been increasingly aware of the necessity to have a co-ordinated transport policy.

There is considerable variation in the relative importance of general government investment in social services. In the Scandinavian countries and the United Kingdom the high share of social services has been a result of conscious welfare policies. The expansion of educational and health services in most countries also reflects important demographic changes in the nineteen fifties, notably the relative increase of the school-age population and of the aged.

In contrast with educational services and general and community services for which the public sector has unquestionably taken primary responsibility, the role of the government in health and other social services varies greatly. For example, the decline in public hospital construction in the nineteen fifties in the United States was accompanied by an increase in private construction with the result that the public share declined from over three-fifths to less than two-fifths.

General government investment policy has been very mildly anti-cyclical in character in most countries,[23] as may be seen in chart 1-5 which, however, does not reflect movements within individual years. The principal stabilizing effect of investment policy has come about through the steadiness of general government investment expenditure during recessions, reinforced in some cases by a corresponding stability in the investment of public enterprises. Governments have not, however, relied to any considerable extent upon the anti-recessionary effect of general government investment because such investment usually takes time to be implemented and the post-war recessions have been too short-lived to call for large-scale public works. Anti-cyclical policy during periods of prosperity is less apparent. Since the post-war period has been charac-

[23] For further discussion, *see* United Nations, *Economic Survey of Europe in 1959*, chapter V.

Table 1-13. Pattern of Investment of General Government

(Percentage of gross domestic fixed investment of general government)

Country and item	1938	1950	1951	1952	1953	1954	1955	1956	1957	1958
Canada										
General services	...	...	12.2	12.8	11.3	14.2	15.0	10.8	10.9	11.0
Community services	...	...	45.5	53.3	51.3	53.1	50.0	54.6	55.4	59.3
Roads[a]	...	...	24.0	23.6	24.5	22.8	27.6	32.3	35.3	33.5
Social services	...	...	22.2	17.1	18.4	20.0	22.8	20.7	21.9	19.2
Education	...	...	13.7	10.7	9.9	11.3	13.0	12.4	14.0	11.8
Denmark										
General services	...	...	...	...	...	...	...	...	...	...
Community services	...	39.1	38.4	39.2	41.8	36.1	35.7	40.0	32.9	33.1
Roads	...	...	...	...	...	...	...	...	...	...
Social services	...	42.2	42.5	40.5	39.8	47.9	48.4	43.0	46.4	46.4
Education	...	20.3	21.9	24.1	25.5	30.6	30.3	23.7	24.3	24.5
France										
General services	...	...	...	...	...	18.1	16.3	10.4	15.3	12.7
Community services	...	...	...	...	...	55.4	60.0	57.6	53.7	47.3
Roads	...	...	...	...	...	17.7	18.4	9.2	13.1	...
Social services	...	...	...	...	...	26.1	...	31.9	31.0	40.0
Education	...	...	...	...	...	...	23.8	29.8	...	...
Germany (Federal Republic)										
General services	...	...	...	...	...	...	...	...	...	...
Community services	...	...	39.8	39.8	43.6	46.2	51.9	50.6	...	...
Roads	...	...	...	...	...	...	...	...	...	...
Social services	...	...	39.7	39.9	38.0	35.3	31.3	31.6	...	...
Education	...	...	...	...	...	...	...	...	...	...
Netherlands										
General services	...	...	...	...	...	...	...	...	...	...
Community services	...	68.0	69.4	70.6	73.8	68.7	68.6	72.7	72.9	69.0
Roads	...	...	...	...	...	...	...	...	...	...
Social services	...	...	...	...	...	...	...	...	...	...
Education	...	8.1	8.9	11.5	13.2	14.6	13.7	12.0	13.6	16.3
Norway[a]										
General services	8.4	5.3	5.4	9.8	8.8	7.9	7.7	6.8	6.8	..
Community services	71.1	58.9	57.6	61.2	60.2	58.8	60.5	64.2	63.9	65.2
Roads	...	...	39.6	35.4	34.9	33.7	36.9	35.2	36.6	39.0
Social services	15.5	22.1	23.4	29.8	31.3	35.5	35.5	33.5	35.3	34.0
Education	9.9	13.8	14.3	16.1	18.6	22.2	21.7	19.9	20.8	20.3
Sweden										
General services	...	...	...	...	...	...	...	...	...	...
Community services	37.9[b]	54.5	55.5	51.3	55.0	56.9	61.2	57.7	58.3	59.1
Roads	31.3[b]	29.4	33.9	34.2	35.7	32.3	35.1	33.5	34.4	35.8
Social services[c]	62.0[b]	45.5	44.6	48.7	45.0	43.1	38.8	42.3	41.8	41.0
Education[d]	15.5[b]	26.6	28.1	29.2	27.3	29.5	29.2	25.7	23.3	23.9
United Kingdom										
General services	...	5.1	5.3	8.3	10.0	10.1	8.5	6.9	4.8	3.8
Community services	...	20.3	21.9	23.2	27.5	27.4	27.7	28.2	28.3	33.6
Roads	...	8.0	7.7	7.2	7.5	8.7	11.2	12.6	14.1	19.9
Social services	...	50.7	48.5	49.7	45.5	46.2	47.3	48.5	52.1	49.0
Education[e]	...	37.0	36.7	39.2	36.0	35.6	36.6	39.3	41.7	39.1
United States										
General services	...	...	...	...	...	...	...	...	...	...
Community services	56.1	40.6	37.2	39.0	42.4	47.4	47.5	48.0	47.0	47.1
Roads[f]	49.6	39.5	36.4	38.4	41.4	46.2	46.4	46.9	45.9	45.8
Social services	15.5	34.4	38.1	37.4	34.5	33.8	34.7	33.6	34.6	35.1
Education	10.9	19.7	21.9	22.1	22.4	25.5	28.0	27.3	26.5	24.6

Source: United Nations Division of General Economic Research and Policies.

Note: For definition, *see* footnote *18*. Percentages do not necessarily add to 100 because the residual is not shown.

[a] Including repairs and maintenance.

[b] Fiscal year beginning 1 July.

[c] Including general services.

[d] Schools and churches.

[e] Education and child care.

[f] Highways.

Table 1-13. Pattern of Investment of General Government

(Percentage of gross domestic fixed investment of general government)

Country and item	1938	1950	1951	1952	1953	1954	1955	1956	1957	1958
Canada										
General services	...	...	12.2	12.8	11.3	14.2	15.0	10.8	10.9	11.0
Community services	...	...	45.5	53.3	51.3	53.1	50.0	54.6	55.4	59.3
Roads[a]	...	...	24.0	23.6	24.5	22.8	27.6	32.3	35.3	33.5
Social services	...	...	22.2	17.1	18.4	20.0	22.8	20.7	21.9	19.2
Education	...	...	13.7	10.7	9.9	11.3	13.0	12.4	14.0	11.8
Denmark										
General services	...	...	...	...	...	...	...	...	...	...
Community services	...	39.1	38.4	39.2	41.8	36.1	35.7	40.0	32.9	33.1
Roads	...	...	...	...	...	...	...	...	...	...
Social services	...	42.2	42.5	40.5	39.8	47.9	48.4	43.0	46.4	46.4
Education	...	20.3	21.9	24.1	25.5	30.6	30.3	23.7	24.3	24.5
France										
General services	...	...	...	...	...	18.1	16.3	10.4	15.3	12.7
Community services	...	...	...	...	...	55.4	60.0	57.6	53.7	47.3
Roads	...	...	...	...	...	17.7	18.4	9.2	13.1	...
Social services	...	...	...	...	...	26.1	...	31.9	31.0	40.0
Education	...	...	...	...	...	...	23.8	29.8	...	...
Germany (Federal Republic)										
General services	...	...	...	...	...	...	...	...	...	...
Community services	...	...	39.8	39.8	43.6	46.2	51.9	50.6	...	...
Roads	...	...	...	...	...	...	...	...	...	...
Social services	...	...	39.7	39.9	38.0	35.3	31.3	31.6	...	...
Education	...	...	...	...	...	...	...	...	...	...
Netherlands										
General services	...	...	...	...	...	...	...	...	...	...
Community services	...	68.0	69.4	70.6	73.8	68.7	68.6	72.7	72.9	69.0
Roads	...	...	...	...	...	...	...	...	...	...
Social services	...	...	...	...	...	...	...	...	...	...
Education	...	8.1	8.9	11.5	13.2	14.6	13.7	12.0	13.6	16.3
Norway[a]										
General services	8.4	5.3	5.4	9.8	8.8	7.9	7.7	6.8	6.8	...
Community services	71.1	58.9	57.6	61.2	60.2	58.8	60.5	64.2	63.9	65.2
Roads	...	...	39.6	35.4	34.9	33.7	36.9	35.2	36.6	39.0
Social services	15.5	22.1	23.4	29.8	31.3	35.5	35.5	33.5	35.3	34.0
Education	9.9	13.8	14.3	16.1	18.6	22.2	21.7	19.9	20.8	20.3
Sweden										
General services	...	...	...	...	...	...	...	...	...	...
Community services	37.9[b]	54.5	55.5	51.3	55.0	56.9	61.2	57.7	58.3	59.1
Roads	31.3[b]	29.4	33.9	34.2	35.7	32.3	35.1	33.5	34.4	35.8
Social services[c]	62.0[b]	45.5	44.6	48.7	45.0	43.1	38.8	42.3	41.8	41.0
Education[d]	15.5[b]	26.6	28.1	29.2	27.3	29.5	29.2	25.7	23.3	23.9
United Kingdom										
General services	...	5.1	5.3	8.3	10.0	10.1	8.5	6.9	4.8	3.8
Community services	...	20.3	21.9	23.2	27.5	27.4	27.7	28.2	28.3	33.6
Roads	...	8.0	7.7	7.2	7.5	8.7	11.2	12.6	14.1	19.9
Social services	...	50.7	48.5	49.7	45.5	46.2	47.3	48.5	52.1	49.0
Education[e]	...	37.0	36.7	39.2	36.0	35.6	36.6	39.3	41.7	39.1
United States										
General services	...	...	...	...	...	...	...	...	...	...
Community services	56.1	40.6	37.2	39.0	42.4	47.4	47.5	48.0	47.0	47.1
Roads[f]	49.6	39.5	36.4	38.4	41.4	46.2	46.4	46.9	45.9	45.8
Social services	15.5	34.4	38.1	37.4	34.5	33.8	34.7	33.6	34.6	35.1
Education	10.9	19.7	21.9	22.1	22.4	25.5	28.0	27.3	26.5	24.6

Source: United Nations Division of General Economic Research and Policies.

Note: For definition, *see* footnote *18*. Percentages do not necessarily add to 100 because the residual is not shown.

[a] Including repairs and maintenance.

[b] Fiscal year beginning 1 July.

[c] Including general services.

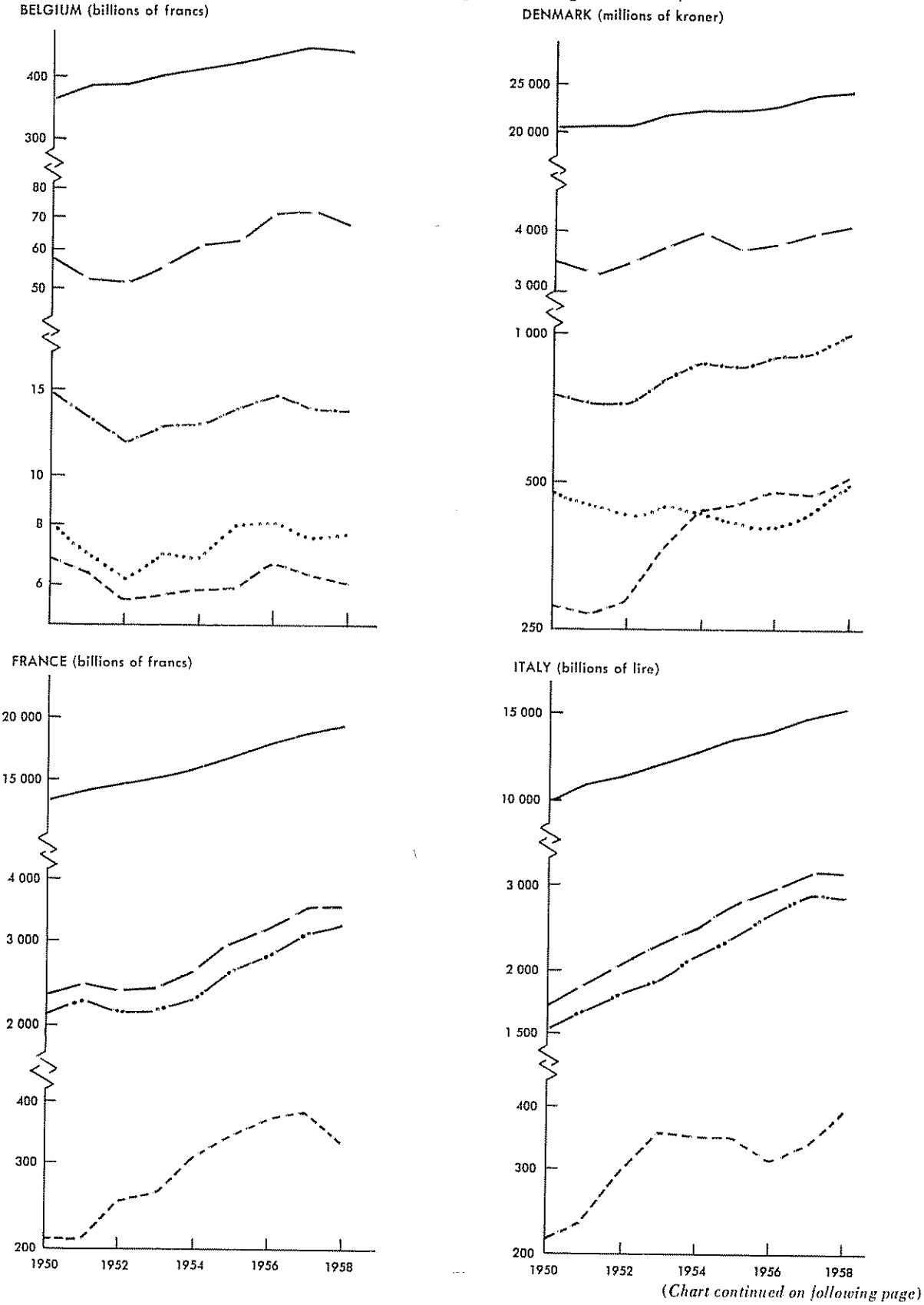
[d] Schools and churches.

[e] Education and child care.

[f] Highways.

Chart 1-5. Movements in Public Investment

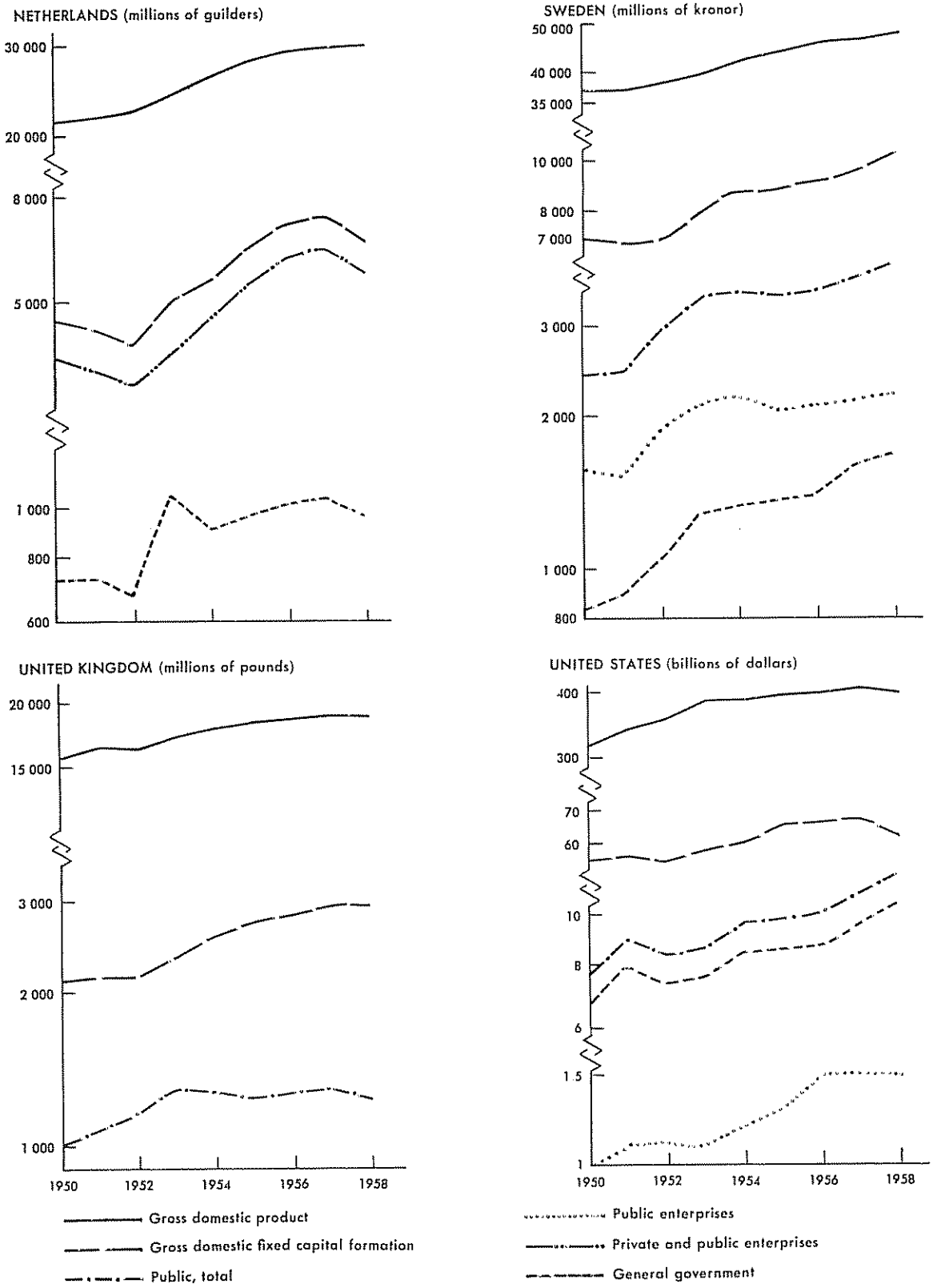
(In national currencies at constant prices; semi-logarithmic scale)



(Chart continued on following page)

Chart 1-5. Movements in Public Investment (*continued*)

(In national currencies at constant prices; semi-logarithmic scale)



Source: Table 1-10.

terized by general expansion at high levels of employment, general government investment has been subject to more or less continuous restraints; thus severe measures of curtailment have been applied only occasionally —and then only when an upswing has reached an advanced stage, as in the case of the Netherlands in 1957 and in the United Kingdom a year earlier. The result of the general restraint has, in a number of cases, been a lag in government investment in relation to requirements or social standards as will be pointed out further below.

Public enterprises

The dividing line between general government and public enterprises is often difficult to draw. The difficulty occurs not so much at the conceptual level as in the paucity of detailed data which would enable the various items to be distributed in accordance with accepted definitions. It is nevertheless possible to reach some tentative conclusions on the extent and nature of investment in public enterprises, albeit on the basis of limited information.

In most industrial countries investment in public enterprises has exceeded that in general government, the main exceptions being Canada and the United States. Although public enterprises include traditional trading activities of government departments such as post-offices, the fact that the relative weight of public investment has shifted from general government functions to trading activities represents a departure from classic conceptions of government.

The growth of public enterprises in a number of countries in the post-war years has not, however, originated mainly from ideological grounds. It is true that in the immediate post-war years nationalization was a deliberate public policy in a number of countries and that more recently denationalization in some countries has also reflected a change in political climate. Likewise the small scale of public enterprises in the United States has mirrored the strong sentiment against public ownership. A more significant determinant will, however, be found in pragmatic considerations in most countries. Even in those countries where nationalization was part of a political programme, this did not always mean that the whole of the programme was politically controversial. Generally speaking, the particular conditions of the industries concerned played a crucial role. The nationalization of the coal industry and of the railways in the United Kingdom was influenced by the fact that these had long been sick industries and government intervention in one form or another had therefore been expected. It is also significant that after denationalization of the iron and steel industry in the United Kingdom the government retains a considerable degree of control over the industry through a public board, and that attempts to dispose of certain public enterprises in the Federal Republic of Germany have had to be shelved owing to a lack of purchasers.

The extent to which the government actually controls the investment policies of public enterprises is affected by a complex of factors. In the first place, institutional arrangements are usually highly complicated. Public enterprises may either be directly under the control of government departments, or they may be established as special public corporations or authorities, or as mixed enterprises. At first sight it might appear that departmental enterprises should be the most effectively controlled. Any such distinction is, however, blurred by the fact that special latitude has usually been granted to such enterprises precisely because their functions have been recognized as different from general government functions. This fact is perhaps most clearly illustrated by the establishment in Sweden of trading agencies which, though a part of the civil service, have enjoyed considerable autonomy in management. The principle of autonomy is, of course, even more explicitly recognized in public corporations, but at the same time the principle of public accountability is also stressed. The actual balancing of these two principles varies greatly not only between countries but also between corporations. In the United States the desire to guard against expansion of the power of public corporations has found expression in strict control of their activities. In the United Kingdom, the policies of public corporations have been identified with those of the government. On the other hand, government control in France is diluted by tripartite representation—namely, government departments, employees and consumers—on the boards of public corporations. The fact that public corporations have been created by special enactments helps to explain the individuality of each such corporation, in a given country. This individuality has been further reinforced by the development of conventions and tacit understandings inherited from the past or based on measures introduced by strong personalities.

There is some presumption that the control of mixed enterprise may, on the whole, be weaker than of other forms of public enterprise since government rights may be limited to those exercised as a shareholder. This is particularly the case where public ownership has been inherited from previous régimes, as in the mixed enterprises of Austria, the Federal Republic of Germany and Italy. On the other hand, the influence of private shareholders on broad policies may be purely nominal as in the case of the state monopolies in Sweden.

Another factor influencing the degree of government control is the nature of the industries concerned. To some extent this consideration is related to the institutional arrangements just mentioned. Traditional enterprises such as the postal services are usually organized as departments while industrial enterprises generally take the corporate form. On the other hand, a variety of organizational forms may be found in railways and communications. It is thus useful to examine separately the economic characteristics of the industries concerned. Where public enterprises are monopolies, such as those

running the railways or supplying electricity, government control tends to be relatively strict. Where the industries compete directly with private enterprise, as in the case of Renault in France, public policy has tended to treat them as if they were private enterprises. In this connexion, the treatment of airlines largely as private enterprises, despite substantial domestic monopoly, reflects the importance attached to international competition.

An examination of the pattern of investment in public enterprises, as shown in table 1-14, indicates a high degree of concentration in essential public services, especially in transport and communications, power and water. Most of these industries are monopolistic in character. When they are in private hands, they are inevitably under public regulation or control, as in the case of railways or electric and gas utilities in the United States. In Sweden and especially the United Kingdom, housing has also accounted for a sizable share of investment by public enterprises. Public enterprise investment in other industries is small in most cases; and even where it is fairly significant it is probably influ-

Table 1-14. Pattern of Investment of Public Enterprise

(Percentage of gross domestic fixed investment of public enterprises)

Country and item	1938	1950	1951	1952	1953	1954	1955	1956	1957	1958
Denmark										
Housing	...	...	...	...	...	...	...	...	...	...
Transport	..	19.8	19.4	17.8	18.4	22.7	21.6	25.8	23.7	27.5
Communications	.	26.0	26.7	27.5	27.3	28.3	29.9	30.8	25.8	23.9
Power and water	...	49.0	47.6	47.7	46.4	43.4	39.6	37.4	44.2	42.0
Other industries	.	5.2	6.3	7.0	8.0	5.7	8.9	6.0	6.3	6.5
France										
Housing	...	...	...	...	...	...	...	...	...	...
Transport	...	...	..	...	...	...	...	..	...	19.5
Communications	...	...	...	...	...	...	...	...	...	...
Power and water	...	...	...	...	...	33.3	33.9	33.5	35.7	42.6
Other industries	...	...	...	...	...	...	...	...	...	4.7
Germany (Federal Republic)										
Housing	..	...	...	...	...	...	...	...	..	...
Transport	...	...	..	...	...	...	...	32.0	...	...
Communications	...	...	...	...	...	...	...	14.0	...	...
Power and water	...	...	...	...	...	...	...	46.0	...	...
Other industries	..	...	...	...	...	...	...	...	...	...
Japan										
Housing	..	...	...	..	...	...	...	...	10.0	...
Transport	...	...	...	...	...	...	...	...	37.3	...
Communications	...	...	...	...	...	...	...	...	21.6	...
Power and water	...	...	...	...	...	...	...	...	24.5	...
Other industries	...	...	...	...	...	...	...	...	6.6	..
Norway[a]										
Housing	...	...	...	...	...	...	...	...	...	...
Transport	52.4	27.3	29.7	30.5	28.1	27.0	27.5	27.1	26.2	25.4
Communications	16.6	11.0	9.3	9.6	10.5	10.2	11.8	10.7	11.0	11.8
Power and water	24.2	47.7	43.9	42.7	39.2	40.1	45.0	43.3	48.0	47.7
Other industries	6.9	14.0	17.2	17.3	22.2	22.6	15.7	18.9	14.8	15.1
Sweden										
Housing	6.8[b]	26.3	28.0	22.3	23.7	26.4	27.0	26.0	27.3	26.0
Transport[c]	24.3[b]	10.6	11.3	12.6	14.7	12.9	13.3	12.2	12.2	12.5
Communications[c]	31.6[b]	13.8	12.1	12.6	13.6	11.3	12.3	12.4	9.9	11.4
Power and water[c]	16.9[b]	11.7	10.8	14.3	13.8	13.7	13.0	13.0	13.5	15.1
Other industries	...	...	...	...	...	...	...	...	...	...
United Kingdom										
Housing	...	43.1	41.5	43.7	44.9	40.7	34.8	32.3	29.3	...
Transport	...	20.9	17.9	16.2	16.6	15.8	18.9	23.1	27.1	...
Communications	...	30.0	29.2	28.2	26.8	30.6	34.2	32.6	32.5	...
Power and water	...	6.0	11.3	11.9	11.6	12.9	12.1	12.1	11.2	...
Other industries	...									

Source: United Nations Division of General Economic Research and Policies.

Note: Percentages do not necessarily add to 100 because of incomplete information.

[a] Including repairs and maintenance.

[b] Fiscal year beginning 1 July.

[c] Excluding local government enterprises.

enced more by historical accident than by deliberate policy. The significant share of the German public enterprises in certain industries is a case in point, these industries having been inherited from previous governments and having been operated more or less like private enterprises. In the case of Italy, although such industries may also be traced to historical accident, they have been actively used as instruments of public policy. This is partly due to the fact that the level of Italy's development is relatively low and the government's role in initiating the development of industries which require large amounts of capital or involve large risks has been considered important. This technique was also employed in Japan in earlier years.

To the extent that public enterprises are called upon either to supply basic services or to compete with private industry, the degree of adaptability of investment to broad policy requirements may be limited and is apparently less than in general government. Even so, the anti-cyclical role of public enterprise investment has not been negligible in some countries, as may be deduced from the data presented in chart 1-5. This role may be greatly strengthened with the aid of long-range investment programmes as has been done in Austria, Italy and the United Kingdom.

A further factor in influencing the degree of government control of investment of public enterprises relates to the price policy of the government. There need, of course, be no direct relationship between the price charged by a public enterprise and its volume of investment since profit need not be the sole guide for allocation of resources in public enterprises. In a state monopoly high profits do not necessarily lead to high investment and a public service may be provided on general welfare grounds even with a sustained loss. Yet a downward pressure on prices tends to exert a similar pressure on investment since it is usually more difficult to obtain funds for investment when there is also a current deficit to be covered. Under the generally inflationary conditions prevailing in the post-war years there has in fact been a persistent tendency to keep prices charged by public enterprises low despite increases in costs. This has generally occurred because the government has been anxious to avoid responsibility for setting the pace of inflationary price increases, or because it was desired to provide a stimulus to industries using products of public enterprises. Moreover, apart from questions relating to the general level of prices, the price structure may lack the kind of rational basis which would make it an effective guide to resource allocation. Thus the rate pattern of railways may have very little to do with either relative costs or competitive advantages. While these considerations are also applicable to some extent to regulated public service industries in private hands, the practice of rate fixing based on "fair returns" provides an important point of difference.

PUBLIC POLICIES AFFECTING PRIVATE INVESTMENT

General considerations

Apart from direct government control of investment in the public sector, various measures have been used by governments to influence the volume and direction of private investment, which remains predominant in the industrial countries. However, the ways in which public and private investment may be affected by government policy are significantly different.

On the whole, decisions regarding public investment can be fairly precise. Even though, as already noted, the degree of control which the government has over public investment is much smaller than might appear at first sight, it remains true that the means can always be found of achieving a particular level or distribution of public investment. Government decisions regarding private investment, on the other hand, attempt to affect the course of action of private business and the outcome is necessarily less certain.

From the point of view of the government, there are important differences in the financial implications of measures affecting public as against private investment. Changes in the volume of public investment directly involve equivalent public expenditure, while private investment may be influenced by a wide variety of methods ranging from direct grants to measures requiring little expenditure. Even where direct government grants or subsidies are involved, it is frequently possible to induce a matching—or even greater—sum of private spending with a given sum of public spending. This is due to the fact that a relatively small inducement to private investment may move a submarginal project into the area of profitability. This has been clearly demonstrated in housing where both public and private projects co-exist.

Because of the basically indirect nature of public policies affecting private investment, and the uncertainties surrounding their impact, it is often difficult to discover which policies are the most significant. It has already been pointed out that a general climate of confidence may be of the greatest importance for investment decisions, which are by nature forward looking and risk taking. Similarly, the expectation that severe depressions will no longer be tolerated and that measures to counter deflationary tendencies are likely to succeed may provide a potent stimulus to investment. The list of public policies which might affect private investment in some way could be greatly extended. In the present context, however, attention will be focused on those measures which affect the profitability of private investment more or less directly, whether such measures are aimed at the general level, the structure or the geographical location of private investment.

Before the specific measures are reviewed in some detail, two significant trends should be emphasized. In the first place, there has been a continuing tendency in

the industrial countries to move away from direct controls. Such controls had played an important role in the immediate post-war years and during the Korean boom. The desire to dispense with such measures has, however, been reflected in the wholesale dismantling of control machinery and in the movement towards liberalization of trade and, more recently, towards currency convertibility. Together with the policy of stable exchange rates, the implication of the tendency towards decontrol is that the burden of any given policy must fall more heavily on measures relying largely on incentives.

A second major trend during the post-war years has been the revival of monetary policy as a means of correcting balance of payments disequilibria or of containing upward pressures on prices. In contrast, fiscal and other restraints have been relatively mild in most countries, if used at all. Thus monetary policy has been made to carry an extremely heavy burden, and the monetary authorities themselves have been among those who have recognized that in many cases this burden has been excessive.

The shift in the centre of gravity of public policy is well illustrated by the fact that while the trend of tax rates during the past decade has been clearly downward, the trend of interest rates and of pressures upon liquidity has been equally obviously upward. In fact it has not been uncommon for government expenditure to rise and for taxes to be reduced at the same time as monetary restrictions were being tightened. The short-term effectiveness of changes in the supply of money and in interest rates in dealing with cyclical fluctuations is a matter of some controversy, although evidence recently published by an official inquiry in the United Kingdom has indicated virtual unanimity among leaders of industry in that country that their investment plans are rarely changed in response to short-term shifts in monetary policy.[24]

In the longer run, however, rising interest rates together with reduced corporate liquidity as illustrated in table 1-15 may have a significant effect on investment decisions yet to be made, whatever their impact may be on decisions already crystallized. At all events, it would be paradoxical to assume that monetary policy is sufficiently flexible to be used ase a counter-cyclical weapon, but that the trend towards tighter monetary restrictions over the business cycle as a whole would not affect investment unfavourably. Even if it be true that the impact of such restrictions upon residential construction is usually much greater than upon productive investment, it cannot be taken for granted that the effect on the latter is negligible.

As mentioned previously, this is not to say that fiscal policy may not be designed to fall most heavily on investment nor that monetary policy may not be directed to curb consumption. The introduction of investment taxes in the Scandinavian countries and the restriction of consumer credit in a number of countries are cases in point. Nevertheless consumption is likely to be more strongly affected by changes in taxes on income or expenditure than by changes in interest rates or liquidity. And conversely, in so far as general, rather than selective, monetary restraints do produce results, they may affect productive investment more than consumption.

The difficulty is that in a context of balance of payments pressure, or of price inflation, actual or feared, investment is apt to be viewed primarily in its role as a component of demand, while its functions in adding to capacity may be overlooked. Adequate measures to deal with balance of payments pressures often depend in the long run upon the expansion of exportable supplies or the reduction of import demands, and both of these would be facilitated by well-directed investment. Likewise, granted the fact that wage earners have come to expect some minimum rate of progress in money wages, the chances of holding wage costs steady depend mainly upon constant advances in productivity, and hence again upon appropriately directed investment. Structural adaptation to changes in the pattern of demand, and the most rapid absorption of technological progress similarly require investment of the right type and in the right volume, as shown earlier.

A short view may be particularly unfortunate where upward pressures on prices are due not so much to excess demand or even to wage-cost inflation as to the

[24] See *Report of the Committee on the Working of the Monetary System*, Cmnd 827 (London, 1959).

Table 1-15. Trend in Corporate Liquidity[a]
(Percentage)

Country	1950	1951	1952	1953	1954	1955	1956	1957	1958
Canada[b]	79.2	74.9	54.3	49.7	44.0	44.9	45.1	34.8	...
Japan[c]	...	...	18.1	18.0	17.4	18.9	15.4	13.2	15.3
United Kingdom	47.9	45.3	37.9	40.3	42.4	39.7	36.2	32.2	30.6
United States[d]	59.9	54.7	52.7	53.2	52.7	48.0	41.3	39.9	44.7

Source: United Nations Division of General Economic Research and Policies, based on official sources, except for the United Kingdom, based on data published by *The Economist* (London).

[a] Ratio of liquid assets to current liabilities. Liquid assets represent cash and government securities, except for Japan where liquid assets include cash only.

[b] On 31 March.

[c] On 30 September.

[d] On 31 December.

existence of some specific shortage in a particular sector of the economy. If, each time the bottleneck is reached, the economy as a whole has to be slowed down, there is a considerable danger that the incentive to invest in larger capacity for the production of items in short supply will be constantly inhibited at exactly the point at which it would have been most valuable; and in this way a vicious circle of restricted output and restricted demand may come into play.

The problem of how to see beyond day-to-day pressures is one of the most difficult that confronts any governmental administration in modern times. It is often far from obvious what the long-run policy implications may be of a series of decisions taken to deal with short-run issues. What the foregoing discussion suggests, however, is that the over-all balance between supply and demand has probably been secured at a higher level of consumption and a lower level of investment than might have occurred if government policy had been approached with the long-run needs of investment and growth more clearly defined and articulated.

Tax incentives

The more direct measures affecting private investment centre around the raising of the profitability of investment by favourable tax treatment, by direct grants or subsidies, by low interest charges or through price supports.

Prevailing high rates of taxation on business profits —ranging in most cases from about one-third to over half of the total—provide governments with substantial leverage in influencing private investment decisions through tax remission of one kind or another. Almost all industrial countries have taken steps, in the course of the post-war period, to encourage investment through a policy of liberal allowances for depreciation. The fact that depreciation allowances are not simply a function of the physical durability of capital but of its economic usefulness has gradually gained recognition. The rapid advances in technology in the post-war years have demonstrated further that machinery and equipment which are perfectly intact from a physical point of view may be obsolescent. It has thus been increasingly realized that depreciation allowances calculated by traditional accounting conventions based on the expected physical durability of capital and on equal annual amounts of wear and tear throughout the life of the asset (the straight line method) may tend to overstate profits and consequently taxes on profits.

An important step towards a more realistic depreciation allowance has been the acceptance in most countries of the declining balance method, under which the main part of the depreciation falls in the first few years of the life of the asset. In Canada the declining balance method adopted since 1949 has permitted depreciation approximately twice as fast as the straight line method during the early years. In the United States a similar provision was introduced in 1954 with the result that from about two-thirds to three-quarters of the cost of equipment may be written off during the first half of the estimated service life.[25] In the Federal Republic of Germany the rate of depreciation introduced in 1952 was as much as two and a half times that based on the straight line method.

The persistent rise in the prices of capital goods during the post-war years has raised doubts as to the appropriateness of the determination of depreciation allowances on the basis of historical cost. Few governments have, however, been prepared to change the conventional procedure. Only in those countries where the rise in prices has been very marked, has some provision been made to take this fact into account. Thus in Austria, Belgium, France, Italy, Japan and the Netherlands, equipment may be revalued to a certain extent in order to make some allowance for serious inflation in earlier periods.

Some countries have sought to use depreciation allowances for stimulating investment without regard to true depreciation in the economic sense. The most conspicuous cases have been the investment allowances introduced from time to time in Belgium, the Scandinavian countries and the United Kingdom. Under this system, depreciation charges may exceed the full cost of the asset. Various forms of accelerated depreciation have also been introduced in other countries. Perhaps the most liberal treatment is to be found in Sweden, where during the early post-war period business was entirely free to choose the period of depreciation. Despite subsequent tightening of the regulation, the Swedish method of depreciation is still one of the most liberal as regards both the freedom of choice accorded to business and the rate applicable. There is, however, a sharp contrast in Sweden between the liberal treatment of machinery and equipment and the stringent rules affecting buildings.[26]

[25] As an indication of the order of magnitude involved, it has been estimated that the tax saving to business resulting from the 1954 code in the United States would rise from a little over half a billion dollars in the first year to over $4 billion in ten years on the assumption of a 3 per cent annual growth of investment starting from a base of $27 billion. This compares with total annual corporate profits after taxes of $20 to $25 billion in recent years.

[26] Partly because of this disparity, most of the funds available for investment through the release of anti-cyclical investment reserves, for which no further depreciation allowance may be obtained, have been used for building. These reserves are created by the setting aside of up to 40 per cent of profit during periods of high activity; they are exempt from tax and may be used for investment when permitted or ordered by the government. Forty per cent of the reserves are deposited with the central bank while the rest may be retained by the business concerned. The total value of the reserves was some three-quarters of a billion kronor at the end of 1957, equivalent to about a fifth of non-residential construction in that year. When business activity appeared to be declining in 1958, the government authorized the use of the reserves for investment. This, together with the abolition of investment taxes and more liberal granting of building permits, made it possible for Swedish investment, especially in building, to rise in 1958, whereas in most other industrial countries investment levelled off or declined, as may be seen in chart 1-4.

Differential treatment of depreciation allowances has also been employed in favouring particular sectors of the economy. Typical of such treatment has been the accelerated depreciation allowances to defence facilities in Canada and the United States, to productive investment in Belgium and Norway, to basic industries in the Federal Republic of Germany, and to a selected list of capital expenditures in the United Kingdom. These allowances have generally been applicable for a specific period and have been designed to achieve a particular objective. A selective policy was also implemented in the United Kingdom in 1956, when the general suspension of investment allowances did not apply to expenditures on new ships, scientific research, insulation against loss of heat in industrial buildings, and for certain other purposes.

Inasmuch as liberal depreciation allowances affect investment through enhanced prospects of profitability after taxes, the question arises as to whether the same result may not be achieved through an outright reduction in profit taxes. The fact that practically all governments have relied heavily on the method of varying depreciation allowances rather than profit taxes has probably been influenced by the immense practical difficulties in making frequent adjustments of the basic tax schedules without raising fundamental questions of equity. Moreover, even if changes in profit taxes are feasible, it is more difficult to be selective between industries. Only in a few cases have exemptions of profit taxes been granted to particular industries, as in the Federal Republic of Germany during the early post-war years, in Japan and in the southern region of Italy.[27] Furthermore, since it is not possible to attribute a particular portion of profit to new investment for existing business establishments, a change in profit taxes affects new and old investment alike while a liberalization of depreciation allowances can readily be restricted to new investment. Consequently a given reduction in tax revenue will produce a greater impact upon investment when granted in the form of accelerated depreciation rather than of reductions in profit taxes.

It remains to consider whether a continuously liberal depreciation policy will go on stimulating investment after the initial impact. It should be noted that even if the reduction of tax liability due to rapid depreciation in the early part of the asset life is exactly counterbalanced by an increase in the subsequent years, the mere postponement of taxes enhances the profitability of investment so long as the rate of interest is positive. More importantly, liberal depreciation allowances will continue to provide an incentive to new investment because any increase in tax liabilities as existing equipment grows older may be reversed through the installation of new equipment, thereby raising depreciation allowances once more.[28]

The foregoing discussion does not, of course, imply that liberal depreciation allowances alone will always be sufficient to encourage investment in the precise industries and to the exact extent desired. When business expectations are pessimistic the stimulating effect of a tax remission may be relatively small. Moreover, when depreciation allowances are made variable and subject to periodic changes they may be less effective in stimulating those investments which require a long period of planning ahead. Furthermore, while depreciation allowances may be applied selectively, it is usually difficult to predict the precise amount of additional investment which will result from a given measure of liberalization. Finally, in so far as liberal depreciation allowances yield their greatest benefit to business income, questions of equity and distribution cannot be ignored and appropriate adjustments to the rest of the tax system may be required to achieve any desired goal of equity.[29]

Direct grants and subsidies

Another stimulus to investment has taken the form of outright investment grants and subsidies. These payments have usually been made selectively, the best known example being housing. Public capital grants to owner-occupied dwellings in Belgium, the Netherlands, Norway and Sweden range from one-tenth to one-fifth of the cost. Mention may also be made of the investment grants to the high-cost coal industry in Belgium, to the declining textile industry in the United Kingdom, to the non-competitive shipping industries or airlines in a number of countries, and to firms located in development areas in Belgium, France, Italy,[30] the Netherlands, Norway and the United Kingdom, and in a number of provinces or states in Canada and the United States. The same purpose may, of course, be achieved through an annual subsidy. Such subsidies have been significant in aiding the construction of rental dwellings in a number of western European countries, such as Denmark, the Netherlands, and the United Kingdom.

[27] However, extractive industries receive special treatment in such countries as the United States. For example, the permission given to some of these industries to treat capital costs as current expenditures clearly implies a form of accelerated depreciation. Furthermore, to the extent that depletion allowances deductible from income for tax purposes may exceed the actual cost of mineral assets, they may have the same effect as discriminatory profit taxes in favour of the industries concerned.

[28] Other forms of tax rebate have been employed by some countries from time to time. In Italy, for example, exemptions from import duties and registration fees granted to investments in the south amount to about 15 per cent of the cost of investment where applicable.

[29] For further discussions of depreciation allowances and other tax incentives and their implications, including questions of equity and the degree of effectiveness, *see* United Kingdom *Royal Commission on the Taxation of Profits and Income, Final Report*, 1955, Cmd 9474 (London); Joint Committee on the Economic Report, *Federal Tax Policy for Economic Growth and Stability*, 84th Congress, first session (Washington, D.C., 1955); Joint Economic Committee, *The Federal Revenue System: Facts and Problems 1959*, 86th Congress, first session (Washington, D.C., 1959).

[30] Direct grants in respect of investment in plant and machinery in southern Italy amount to about one-fifth of the cost of investment when applicable.

Additional means of aiding private investment have included capital transfers and the provision of finance. In France, capital transfers to private investment have amounted to roughly one-sixth of total private fixed capital formation. In the Federal Republic of Germany an investment fund established in 1952 was financed by a compulsory loan from all industrial enterprises; the funds allocated to selected industries against the issuance of bonds reached one billion marks or about one-fifth of the cost of investment projects submitted for approval.

Although a complete evaluation of the effect of investment grants and credits must take into consideration the manner in which the expenditure is financed, the net result is almost bound to be favourable to investment. Even if the financing involves taxes which fall largely upon investment, it is highly unlikely that the reduction in investment outlays resulting from such taxes would be as great as the increase in such outlays made possible by the channelling of funds by the government into capital formation. In so far as taxes actually fall to a considerable extent upon consumption, as in the cases of the Federal Republic of Germany and France, the net increase in investment brought about through the use of public funds is likely to be correspondingly greater. Certain industries or activities may play a strategic role in the stimulation of investment. Thus grants or subsidies to research and development tend to hasten the process of innovation and hence of investment in general. Such aid has frequently been connected with defence programmes the cost of which is usually absorbed entirely by the government. Thus in the United Kingdom by far the largest share of total research and development expenditures has been borne by the government. In the United States, the government has also accounted for more than a half of total expenditure for such purposes. In most countries, in addition to direct grants for research and development, the government fosters private research by means of tax exemption and immediate or rapid write-off of investment in research.

A familiar measure for encouraging investment is reducing the cost of borrowing. It has already been pointed out that interest rates have been comparatively high, especially recently. Not since the early post-war years have cheap money policies been employed to stimulate long-term investment, although they have been used as a counter-cyclical weapon.

Low rates of interest designed to encourage investment in particular sectors have, of course, been available in most countries and may be regarded as a form of investment subsidy. A conspicuous example is housing, where the impact of interest rates may be especially significant. In the Federal Republic of Germany interest-free loans were provided for the reconstruction of war-damaged houses, and tax advantages were extended to enterprises making interest-free loans to their staffs for residential construction. Low interest rate financing has also been made available to industries set up in development areas in a number of countries mentioned earlier. These, however, are exceptional rather than typical of government policy in general.

Price supports

Another instrument for influencing the profitability of investment consists of price supports or purchasing guarantees. The most wide-spread and costly support measures have been connected with agricultural products. Public expenditures for such purposes have accounted for an overwhelming proportion of all subsidies and sometimes even for the entire product of the industry. In Austria, Canada, Norway, Sweden, the United Kingdom and the United States, the share of agricultural subsidies in total subsidies has exceeded two-thirds. In Norway and the United Kingdom the ratio of agricultural subsidies to agricultural gross domestic product has amounted to over a third, as may be seen in the following table.

Ratio of agricultural subsidies to agricultural gross domestic product in 1955/56

(Percentage)

Norway	45
United Kingdom	39
Sweden	12
Austria	9
Netherlands	7
United States	7
France	5
Canada	4
Belgium	3
Germany (Federal Republic)	2
Italy	2
Denmark	—

Source: Organisation for European Economic Co-operation, Ministerial Committee for Agriculture and Food, *Agricultural Policies in Europe and North America* (Paris, 1957).

The figures above reflect, of course, only one aspect of the agricultural programme. Protective tariffs on agricultural products, which do not involve actual outlays, may be viewed as supporting domestic agricultural prices. Thus the ranking of countries based on the prices received by producers on a number of crops and livestock products differs importantly, as may be seen in table 1-16, from the ranking shown above.

Although the methods employed have differed from country to country, the net effect of the support programmes has been to stimulate investment in agriculture. While some support measures have been geared to price parity formulas, such formulas alone do not necessarily reflect changes in productivity or profitability. Where price support programmes have been accompanied by production controls, such as acreage restrictions, the effect of the controls has often been frustrated through the increased yields per acre made possible by additional investment on the restricted acreage.

Table 1-16. Indices of Producer Prices of Selected Agricultural Commodities in Nine Western European Countries, 1955/56-1957/58

(Average price of each commodity in nine countries = 100)

Commodity	*Belgium*	*Denmark*	*France*	*Germany (Federal Republic)*	*Italy*	*Netherlands*	*Norway*	*Sweden*	*United Kingdom*
Wheat	101.8	72.8	100.8	110.8	122.3	76.3	138.4	87.4	89.4
Rye	76.5	76.3	93.5	124.7	114.9	87.4	151.1	93.6	81.9
Barley	86.4	83.2	94.4	134.4	112.0	91.3	124.7	86.2	87.3
Potatoes	73.1	82.5	83.9	86.6	136.3	85.7	106.4	118.7	126.4
Sugar-beet[a]	89.9	83.4	95.4	113.2	94.7	89.9	. .	104.3	128.8
Milk	82.6	77.0	97.3	102.3	84.5	94.2	128.0	107.9	126.1
Eggs	88.7	80.8	115.6	112.9	118.8	88.5	87.5	89.4	117.8
Cattle	103.6	80.7	88.1	99.0	128.8	108.3	96.0	105.6	89.9
Pigs	81.5	117.5	109.8	102.0	106.5	84.1	87.2	105.7	105.6
Unweighted arithmetic average of nine commodities	*87.1*	*83.8*	*97.6*	*109.5*	*113.2*	*89.5*	*114.9*[b]	*99.9*	*105.9*

Source: Food and Agriculture Organization of the United Nations, *Prices of Agricultural Products and Fertilizers, 1957/58* (Geneva, 1958).

[a] Average of eight countries = 100.

[b] Average of eight commodities.

The most successful stimulus to investment has thus been created in a sector where the problem is mainly one of surplus rather than of shortage. As noted earlier, this constitutes a classical illustration of a policy the effects of which are hardly the result of deliberate design. Yet political and social forces tend to discourage any major reformulation of policy. In more recent years several governments have attempted a gradual reorientation of policy, by more flexible support programmes and by emphasizing measures facilitating the reallocation of resources, but the pace of progress has so far been slow. It should be emphasized that the point is not whether, in a declining or weak industry, matters should always be left to take their own course, without government intervention, but whether, granted that government intervention is needed, the policies pursued contribute to a gradual solution of the basic problem rather than permitting a drift into deeper imbalance.

Conclusion

The rate of growth of output experienced by the industrial countries since 1950 has been broadly comparable to that recorded during the nineteen twenties—also a period of general economic expansion. In several countries the proportion of real resources devoted to investment has been markedly higher than in the nineteen twenties, but elsewhere the proportion has been similar or lower. There may have been an underlying tendency for capital-output ratios to decline since the nineteen twenties, partly because of a decline in the share of construction in total productive investment, but in countries other than the United States this tendency appears to have been offset by other factors. Among these were the needs of reconstruction, elements of which tended to linger beyond 1950 in some countries, as well as the arrears of investment accumulated during the years of depression and war. Other major post-war influences included the commitment of governments to full employment policies, the enlarged consumption horizon, particularly in respect of consumer durables, and the expanded outlays on research and development.

Since 1950, variation in the rates of growth of output among the industrial countries has been substantial—ranging from 7.5 to 2.2 per cent per annum. At the same time, the rate of growth of capital formation has been higher than that of output. The tangible influence of the volume of investment in each of the industrial countries has been exerted in two ways. First, in terms of demand for output, fixed investment has contributed more than proportionally to the annual growth in production; and secondly, the divergent rates of growth in investment and output imply that there has been an increasing share of output devoted to the enlargement of productive capacity.

Taking the period 1950 to 1958 as a whole, the share of resources devoted to productive investment has varied from 9 per cent in Belgium to 21 per cent in Norway. Allowance for different price relationships in the various countries and for other special factors would reduce this range by as much as one-half, or even more. The countries with the highest investment ratios are also, broadly speaking, those which have achieved the highest rates of growth; and conversely the countries with the lowest investment ratios are the ones whose rates of growth have lagged. The investment-growth relationship suggested by the data appears to imply that whatever other conditions may have been required for an acceleration in the rate of growth, a large-scale diversion of resources from other uses to investment was not needed.

Differences in the growth of productive capacity, while clearly important in the explanation of inter-country differences in the rate of economic growth, have not been the only factor. There has, in fact, been a pervasive mutual interrelationship between a number of factors—some exerting their influence directly on output and others on the productivity of capital in the first instance.

Inter-country differences in the rate at which the labour force was expanding also appear to have contributed to disparate rates of growth in output; and the joint influence of the expansion of the labour force and of productive capacity provides a superior explanation of the divergent rates of economic growth experienced by the industrial countries than either of these factors considered separately. There has also been a significant correlation between the share of resources allocated to productive investment and the growth in output per worker. This suggests that it is open to countries confronted by slow rates of expansion in the labour force to enhance their prospects for achieving a higher rate of economic growth by raising the share of output devoted to investment.

Moreover, once the initial effort has been made to step up the investment ratio and the rate of growth, forces are generated which make it easier for the new levels to be maintained. As soon as the economy has adjusted to the higher volume of investment, the supply of consumption goods can not only rise above its previous level but can increase more quickly in phase with the higher investment. At the same time, the more rapid rate of over-all growth will tend to attract new recruits into the labour force from sources previously untapped, and additional encouragement will be given to research and development. In this and other ways, the higher rate of growth will tend to become self-sustaining.

Structural changes had a major influence upon the rate of growth in a number of countries. The principal change took the form of a shift of resources from agriculture, where average output per man is generally low, to other sectors of the economy where average productivity is relatively high. The scope for gains in output from this source were largest in a number of countries which also experienced relatively high over-all rates of growth between 1950 and 1958.

Other factors affecting the divergent investment-growth experience among the industrial countries tended in the first instance to bear upon the productivity of capital. One such factor was the degree of utilization of productive capacity. It was possible for relatively greater gains in output to be achieved by those countries which had spare productive capacity at the beginning of the period or were confronted by structural unemployment. Similar beneficial effects on output appeared where elements of recovery and reconstruction from the war were still present during the period. Both of these advantages had, of course, only temporary significance. On the other hand, countries which were utilizing their capacity fully during the period were frequently confronted by an imbalance between the pattern of supply and of demand. The consequences of this structural imbalance appeared in the form of excess capacity in declining industries such as textiles, combined with bottlenecks in industries such as metals and engineering where demand grew rapidly over the period. In correcting such imbalance—which was present in some degree almost everywhere—those countries where investment was high naturally had greater opportunities for more rapid adjustment and adaptation than those where investment was low.

The composition of investment—that is, its distribution by industry—appears to have had a direct influence upon the volume of capital required to produce a given flow of output. The capital costs of output vary significantly among the broadly defined sectors of the economy—being higher in power and utilities and transport and communications and lower in manufacturing and trade and services. Thus, in those countries where the pattern of demand has drawn investment into manufacturing, trade and services, the rate of growth of total output has been high in relation to the proportion of resources devoted to investment. On the other hand, where investment in power and utilities and transport and communications has been greater than the average, a given rate of growth has necessitated a relatively high allocation of resources to productive investment.

The role of technological and scientific progress in the investment-growth experience of the industrial countries is not readily measurable. Clearly, however, capital formation provides the avenue whereby technological and scientific advances are introduced into the productive process; and the higher the level of investment, the greater the opportunities for innovation. The evidence suggests that there have been significant differences among the industrial countries in their ability to absorb technological progress. In particular, as a result of a decade of high investment, some countries have raised the technological level of their capital stock much more rapidly than others, and have gained immense advantages accordingly.

The over-all effect of the numerous interrelated factors that have contributed to the investment-output relation finds expression in the incremental capital-output ratio for the period 1950-1958—a quantity which may be regarded as indicating the capital costs of additional output or the productivity of new capital, during the period. On the whole, high productivity of new capital has gone hand in hand with high rates of growth of output, and vice versa. This is further evidence of the fact that the process of economic growth tends to be self-sustaining and to call forth all the environmental, technical, and other influences that are required to propel the economy forward.

One of the most important environmental influences has been that of government policy, which has played a significant role in shaping investment. To start with there has been a long-run tendency for the relative weight of the public sector to increase. During the nineteen fifties the public sector has channelled about a third of the national income and has accounted for about the same proportion of fixed investment in most industrial countries. Moreover, through the expanded functions of the government in economic life, no private investment is immune from the effects of public policy, intended or unintended.

The weight of the public sector cannot be said, however, to have been directed mainly to the promotion of long-term growth. The post-war succession of emergencies of one type or another has created a preoccupation with short-run problems and an environment in which it has been difficult to look ahead. Moreover, so long as backlogs of investment were plentiful, the need for deliberate policies of stimulation was not immediately apparent. Yet, in reviewing the record of the nineteen fifties, and particularly of the last few years, the question naturally arises whether a higher rate of growth might have been achieved and maintained if greater emphasis had been directed towards this goal.

As the world economy enters into the nineteen sixties, the question of the rate of growth has assumed new significance. The large disparity between rates of growth in various countries has raised the question whether improvement might not be feasible in countries where the rates have been low.

At the same time it cannot be assumed that the pressure for investment will be as great in the nineteen sixties as in the fifties. The great depression and the Second World War, which created unprecedented arrears of capital formation, are becoming more and more remote. The pressures on demand from persistent international tension will, it is hoped, be reduced as the folly of global warfare becomes more and more evident. In these circumstances, perhaps the time has come when governments might usefully try to take a longer view of their investment policies than they have been able to do during the past decade.

The formulation of long-term targets and investment programmes has sometimes been viewed with suspicion in private enterprise economies. Yet, post-war experience has shown that there is no necessary conflict between a liberal orientation of policy and the establishment of such programmes. Nor is the usefulness of such programmes limited to the long run, since the degree of short-term flexibility rests largely on the speed with which given decisions can be implemented. Moreover, experience has demonstrated that much of the dislocation associated with sudden policy decisions for which no preparation has been made—as in the vast extension of public health services or the raising of the school-leaving age—can be avoided with adequate forward programming.

The need for a co-ordinated approach to an investment programme has, perhaps, been best illustrated in the development of the less developed regions or depressed industries. Here the impediments to investment to be overcome may be so numerous and stubborn that *ad hoc* measures may often be of little avail.

Of considerable importance also is the creation of a climate favourable to investment, involving the entire social and economic framework. More specifically, the significance of fiscal incentives stands out. A common feature of the fiscal systems of most governments has been the support of the bulk of research and development expenditures which have undoubtedly stimulated investment. To the extent that such expenditures have often been connected with defence, forward programming for their continued flow if defence expenditures are cut or stop expanding appears to be essential.

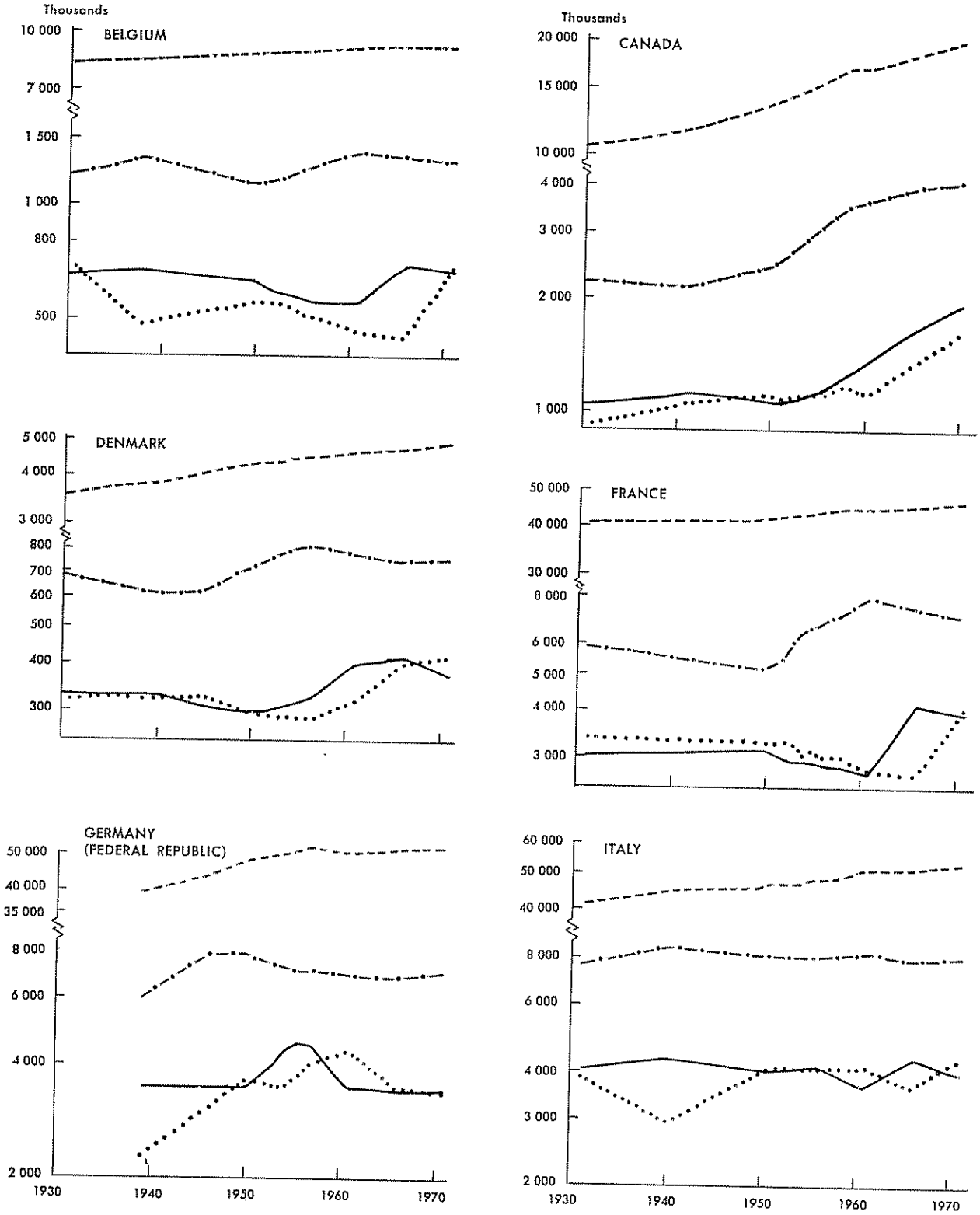
Among the fiscal arrangements which affect investment most is the depreciation allowance. Despite more liberal provisions in the post-war years, prevailing methods of calculation may not always take adequate account of the economic life of capital goods or the increasing costs of replacement resulting from advances in prices. In stimulating investment, liberalized depreciation allowances have advantages over other methods quite apart from the need to correct existing distortions. In comparison with reductions in profits taxes, depreciation allowances can be directed to new investment exclusively. In comparison with direct subsidies for investment, more liberal depreciation allowances are not only more feasible administratively but tend also to benefit the growing and high-productivity firms the most. The stimulating effect is not necessarily restricted to a short period of time as long as the economic life of capital is highly uncertain and tax saving can be achieved by high investment. On the other hand, it has to be borne in mind that the impact of fiscal measures to influence private investment can rarely be estimated precisely, and that such measures may raise questions of equity calling for appropriate adjustments elsewhere in the tax system.

While the major emphasis of investment policy must be directed towards the encouragement of private investment—if for no other reason than its sheer size as compared with public investment—the lack of a forward-looking policy in the very sector in which the government has direct control is not conducive to growth. The issue is not whether government should displace private investment in order to carry out a policy for growth, but whether with a given public sector as defined by the political and social consensus great benefit would not be derived from a more conscious and coherent framework.

In some countries the public sector may be called

Chart 1-6. Changes in Population, Actual and Projected, by Age Group, 1930-1970

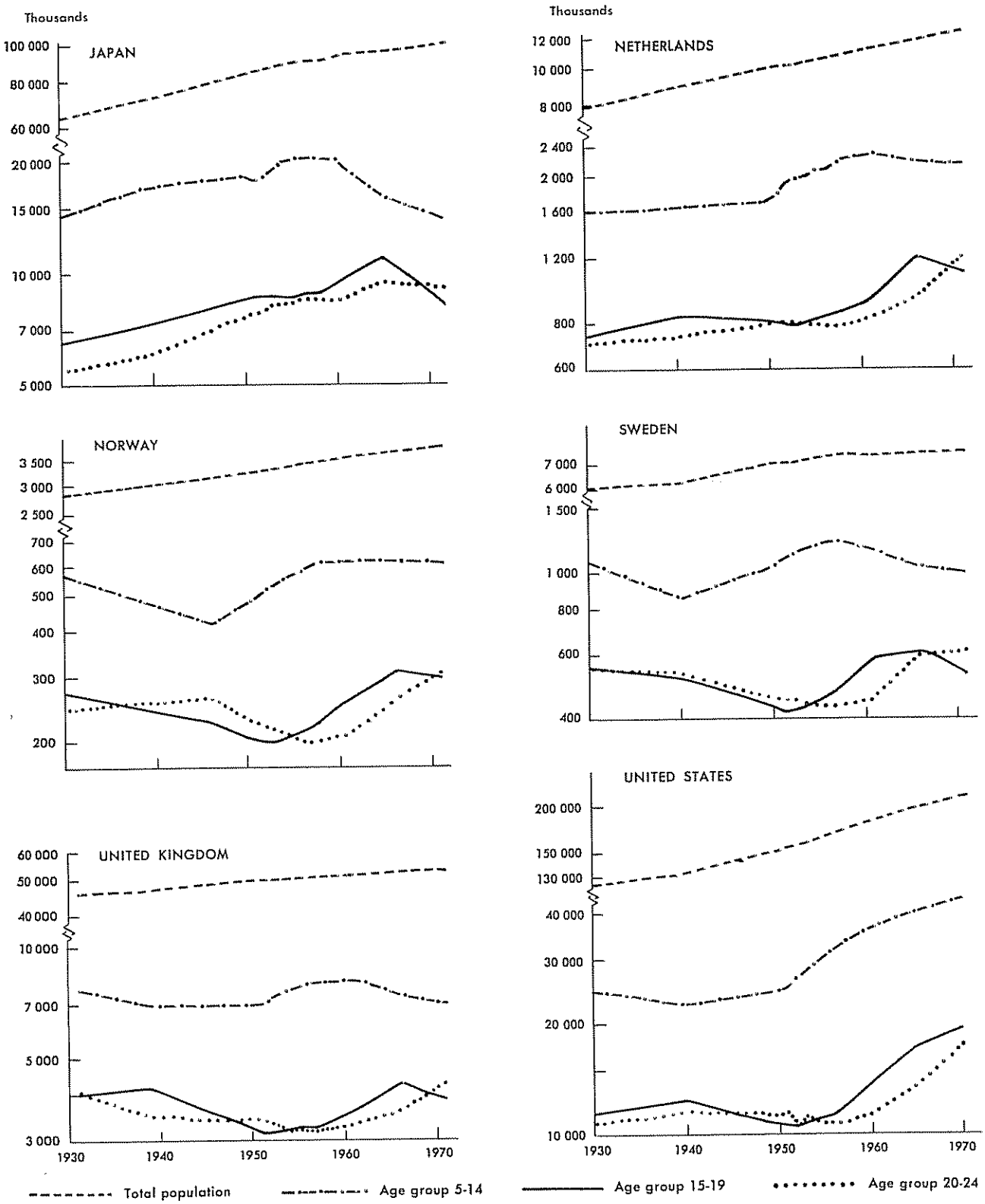
(Semi-logarithmic scale)



(*Chart continued on following page*)

Chart 1-6. Changes in Population, Actual and Projected, by Age Group, 1930-1970 (*continued*)

(Semi-logarithmic scale)



Source: Statistical Office of the United Nations; Organisation for European Economic Co-operation; and national sources.

upon to set the pace of growth rather than to follow in the wake of the growth of other sectors. In any event, there is plenty of scope for government investment activity, as can be illustrated by the possibilities in the traditional sectors of the government—particularly roads, education and health—and in housing, where the government has usually played an important part.

The tremendous increase in the stock of automobiles and the lag in road facilities in the industrial countries during the post-war years have been accompanied by extraordinary congestion and numbers of accidents. The lag in the supply of roads is strongly indicated by a fall in the length of roads per passenger car. The following table shows that in a number of countries the road/vehicle relationship has been halved since pre-war years. Even in the United States, where the automobile revolution took place much earlier than in other industrial countries, and where adaptation to the automobile age is further advanced, road mileage per vehicle has fallen since before the war.

Length of surfaced roads per passenger car in 1957
(Indices; pre-war = 100)

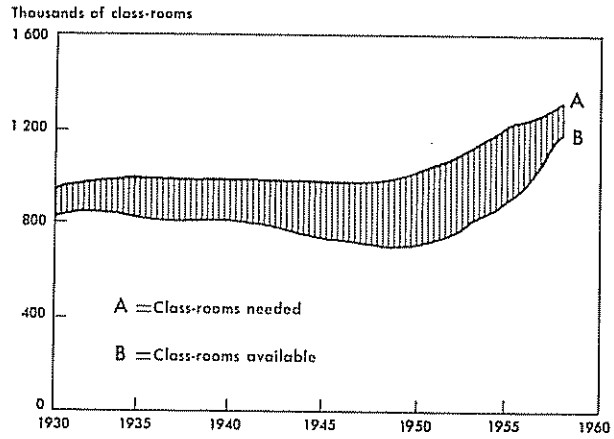
Norway	100
Canada	86
United States	68
Sweden	50
United Kingdom	50
Belgium	30

In formulating programmes of highway and urban street development, it must be borne in mind that, aside from the need for making good the existing deficiencies, the stock of cars is likely to increase at a rapid rate in the nineteen sixties.

The upsurge in the demand for educational facilities in the post-war period has been associated with a population bulge, as shown in chart 1-6. While the emergence of new school buildings has dominated the landscape of practically every locality, shortages of facilities have also been apparent in improvised school buildings and over-size classes. The gap between existing facilities and requirements has persisted in the nineteen fifties in the United States, as may be seen in chart 1-7. In Norway and Sweden the magnitude of the gap in relation to the current level of school construction is broadly comparable to that of the United States. In Italy it is much larger. While official estimates of such a gap are not available in the United Kingdom, the elimination of overcrowding ranks high in official educational objectives.

Although the post-war population bulge is likely to subside in a number of countries in the nineteen sixties, a growth in demand for higher educational facilities will be a natural sequel to the earlier expansion of the elementary or secondary school-age group. Even more important, perhaps, is the fact that educational standards are likely to be raised. Indeed, the period in which

Chart 1-7. Shortage of Public School Class-rooms in the United States, 1930-1960[a]



Source: United States Department of Health, Education and Welfare, annual reports (Washington, D. C.).
[a] School year ending in year stated.

the pressure on facilities may be expected to slacken could be treated as an opportunity for raising standards, as has been advocated in the United Kingdom where it has been suggested that the school-leaving age be increased from fifteen to sixteen. It is also estimated that the consequent increase in demand for school facilities could be met in four years. In most other western European countries the school-leaving age is lower than in the United Kingdom.

While the precise role to be assumed by the government in supplying health facilities is more controversial than in providing roads and education, the adequacy of medical care is a matter of public concern everywhere. Even in countries where private hospitals play an important role, as in the United States, the principle of public aid to private non-profit hospital construction has long been recognized. Increases in hospital facilities in most industrial countries in the nineteen fifties have, however, been only slightly higher than the increase in population, while the sharp expansion in the demand for health services owing to the spread of health insurance, the development of hospital oriented medical care and the rise in the long-term needs of the aged has been only partially offset by the tendency to reduce the average length of stay in general hospitals. The resulting deficiency in existing facilities is indicated by overcrowding and long waiting periods in many instances. In Canada and the United States, for example, the deficit in hospital beds has been estimated to be from a quarter to a half of the existing number.[31]

Investment requirements in housing may be gauged by the slowness with which housing shortages have been made good in recent years. Rough estimates of deficien-

[31] *See* Royal Commission on Canada's Economic Prospects, *Housing and Social Capital* (Ottawa, 1957) and United States Department of Health, Education and Welfare, annual reports (Washington, D.C.).

cies for a number of countries are presented in the following table; these may be compared with the current rate of construction which does not, however, represent net improvement of housing per capita, since it does not allow for replacements and new family formation. While data are not comparable as between countries owing to differences in housing standards, the considerable scope for improvement in such standards should provide an almost inexhaustible source of investment opportunities if resources should permit.

During the past decade the pace of growth of investment has frequently had to be restrained in the industrial countries. If pressures on resources are now less insistent than they were during a period when crisis followed crisis, the case for catching up on investment in essential public services must be regarded as worthy of the most careful consideration by governments along with measures for the promotion of private investment.

Estimated housing deficiency in 1958[a] and annual rate of construction, 1956-1958

(In number of dwelling units per thousand inhabitants)

Country	*Housing deficiency*	*Annual rate of construction*
Canada	22	8
France	53	6
Germany (Federal Republic)	48	10
Italy	21	5
Japan	112	5
Netherlands	20	9
Norway	21	8
United Kingdom	15	6
United States	70	7

Source: United Nations Division of General Economic Research and Policies.

[a] Based upon official estimates of sub-standard housing or overcrowding, carried forward to 1958. Because of considerable differences in standards, the data are not comparable between countries.