Volume Title: Capital Formation and Economic Growth

Volume Author/Editor: Universities-National Bureau Committee for

Economic Research

Volume Publisher: Princeton University Press

Volume ISBN: 0-87014-197-X

Volume URL: http://www.nber.org/books/univ55-2

Publication Date: 1955

Chapter Title: Introduction to "Capital Formation and Economic Growth"

Chapter Author: Moses Abramowitz

Chapter URL: http://www.nber.org/chapters/c1302

Chapter pages in book: (p. 1 - 16)

INTRODUCTION

MOSES ABRAMOVITZ

NATIONAL BUREAU OF ECONOMIC RESEARCH
AND STANFORD UNIVERSITY

I

THE present resurgence of work on questions concerning long-period economic trends and on international differences in levels of development is a reflection of persistent and profound problems troubling the world. Within the capitalist area the decade of the thirties roused fears of economic stagnation which the turbulent experience of the forties has hardly dispelled. Stagnation apart, the increasingly articulate demands of popular electorates have fixed attention upon the very different rates of progress among countries of the Western World and stimulated scholars to measure secular rates of growth and to explore their causes. And the same stimulus, in even more intense form, is afforded by the situation in the underdeveloped countries of Asia, Africa, and South America. The growing gap between their incomes and those of the capitalist world has combined with their peoples' growing awareness of the gap to produce a tension intolerable both to their own societies and to those of the richer West. Meanwhile, West and East, the performance of enterprise economies is challenged by that of the planned economies in Soviet Russia, Eastern Europe, and, still more recently, China.

The Universities–National Bureau Committee assembled an early conference on questions of economic growth in November 1948.[1] It considered papers on the variant meanings and aspects of economic growth, on the theories and factors which have been advanced by way of explanation, and on problems of measurement involved in intertemporal, international, and interregional comparisons. The aims of this first conference were exploratory: "In view of the wide scope of the field, the relative scarcity of sustained empirical work, and the absence of an agreed upon body of theoretical hypotheses concerning factors determining economic growth, any discussion of this topic could be only in the nature of a tentative and preliminary exploration."[2]

[1] The papers submitted were published in "Problems in the Study of Economic Growth," mimeographed, National Bureau of Economic Research, July 1949.

[2] *Ibid.*, from the Foreword by Simon Kuznets.

By the end of 1951 the Universities–National Bureau Committee began to lay plans for a second meeting. It ventured to think that discussion of substantive issues would now be possible, and, in particular, that by the time of the conference the outcome of some empirical work would be ready for examination. To permit searching discussion, it seemed imperative to center attention on some single sector of the sprawling area of investigation relevant to economic growth. And among the sectors close to the center of the problem, it seemed likely that capital formation, long the object of attention for other reasons, would be found in relatively the most advanced state. The determinants of secular trends and of persistent international differences in the level of capital formation, therefore, became the specific subject of the meeting.

II

Because the theory of capital formation has been the object of study for a long time, it is not hard to fix the general outlines of the problem. The conception of the subject which helped shape our program was that the process of capital formation involves three distinct, if interdependent, activities. One is *saving*, the activity by which claims to resources, which might be exercised in favor of current consumption, are set aside and so become available for other purposes. A second is *finance*, the activity by which claims to resources are either assembled from among those released by domestic saving, or obtained from abroad, or specially created, usually as bank deposits or notes, and then placed in the hands of investors. The third is *investment* itself, the activity by which resources are actually committed to the production of capital goods. The volume of capital formation depends on the intensity and efficiency with which these activities are carried on.

So much is, of course, familiar, and the papers presented to the conference deal with some aspects of each of the activities. The matter is complicated, however, by the fact that the manner in which the activities are carried on has changed radically over time and is very different among countries. The standard theory of capital formation, on the other hand, is still heavily influenced by its origins in a particular stage of the development of capitalist economies. It is, moreover, designed to deal especially with the phenomena of interest rates and short-term investment fluctuations. The reconsideration of capital theory from the point of view of secular changes and international differences in the level of capital formation involves some formidable modifications of older views. The next sections contain some brief notes on the relation of the papers in this volume to the new conception of the subject which is slowly crystallizing.

III

The subject of saving raises two broad questions. One concerns the role of saving in the process of capital formation. Modern theory emphasizes the possibility that rates of saving and investment may be incompatible and that a level of thrift that is too high may make for lower rather than higher levels of investment. The analysis that suggests such awkward possibilities, however, is oriented to short-term phenomena and has hardly, as yet, considered the secular relations of saving and investment propensities, particularly for cyclically disturbed economies. I do no more than point to the existence of the problem since none of the papers attacks it directly.

The other great question has to do with the determinants of the supply of saving. With regard to this, our thinking has been heavily influenced by the simple view that the difference between income and "necessary expenses," which affords the power to save, is the chief determinant of the level of saving.[3] From this the easy inference is drawn that as per capita income grows, savings should increase more than proportionately. And it gives rise to the expectation that ratios between savings and national income will be higher in rich than in poor countries, and higher in a given country as its level of average income increases.

These views have received a certain support from interfamily savings comparisons and from studies of short-term savings fluctuations. But Simon Kuznets' work, the relevant results of which are presented in his paper, puts a quite fresh face on the matter. His studies, covering a number of countries, some over a considerable period of years, show: (1) that in comparisons among countries, the correlation between *per capita* income and the savings–national income ratio is far from perfect; (2) that ratios of net savings to net national product, at least for developed and semideveloped economies, fall within a limited range from somewhat over 5 to about 15 per cent; (3) that secular rises in per capita income are not generally accompanied by rises in the proportion of savings to national

[3] Cf. Alfred Marshall, *Principles of Economics*, 8th ed., London, Macmillan, 1938, p. 229.

product. With regard to the third point, the evidence rather shows that in some developed countries the savings ratio either declines slightly or is stable throughout. It also suggests, if only dimly, a long cycle in national savings ratios, ". . . its *up* phase occurring presumably some time after the rise in rates of growth of national product, and of population (in the older countries), and, perhaps, also after that in the growth of per capita product; and its *down* phase emerging at different dates in different countries, and with different degrees of abruptness associated with the disruptive effects of wars and revolutions" (page 32, below).

Although these data do not constitute direct evidence on theoretical savings supply functions, they stand as a challenge to older ideas. And Kuznets' suggestions concerning the causes of the observed savings ratios do the same. His explanation of the range within which the ratios for different countries fall places no weight on the associated range of incomes. It considers the over-all ratio to be a combination of those ruling for two groups of individuals: the rich few, who are "automatic" savers, and the poor masses, whose saving is effortful and, therefore, based on attempts at rational provision for old age. Kuznets considers that, in a progressive society, the incomes of the former group are prevented from cumulating by the economic mobility associated with progress itself. This, together with the downdrift of returns on property, prevents "automatic" saving from becoming ever larger. "Rational" saving is determined by the ratio between working life and life expectancy after retirement, by interest rates, and by the ratio between people of working age and those older. It is, therefore, dominated by demographic factors, themselves associated with economic development. Kuznets' explanation of the stability or downward drift of savings ratios in developed countries also emphasizes a set of factors intimately related to economic progress—the pressure toward higher consumption levels, urbanization, the lessening importance of the individual entrepreneur, and egalitarian legislation.

Individual saving is the typical activity by which resources are released for capital formation in capitalist countries. It is, however, but one extreme in a continuum. Even in capitalist countries the growth in the scale of investment projects has led to institutionalized saving by business enterprises out of profits and by the state out of revenues. In the United States, in the past, these sources produced some 40 per cent of all saving. As the investment projects come to be of national dimensions, there is presumably a tendency for government saving to assume greater importance, as in the development schemes of some of the poorer countries. The other extreme item in the range is provided by saving activity in a comprehensively planned state like the Soviet Union. In that country, as F. D. Holzman's paper reveals, the chief source of savings is taxation. Direct investment by individuals is insignificant. Individual saving, the retained profits of state enterprises, and even increases in currency in circulation have been relatively small.[4]

In these circumstances the level of saving depends in part on governmental policy, and in part, as Holzman argues, on the efficiency of the tax administration and on the effects of taxation on the incentive to produce. Further, since taxation must be extremely heavy in order both to cover the more common functions of government and to provide for investment, the problem of choosing forms of taxation least destructive to production incentives and to the functioning of the price mechanism as a means of allocating resources becomes crucial. According to Holzman, these considerations combine to account for Soviet emphasis on indirect taxes in spite of ideological opposition to their regressiveness. They are easier to administer, and their effect in reducing the rewards of work and of higher-paying jobs is concealed.

An interesting contrast in tax policy, therefore, emerges as we scan the spectrum from capitalism to communism. From the point of view of maximizing saving, it is a familiar maxim in capitalist countries that taxes should be light in order to provide as large a surplus for individual saving as possible.[5] As between indirect taxes and direct, especially progressive, taxes, the former are the better for saving since they protect the large income surplus of the rich and do not shrink the rewards of accumulation. In a communist country, however, taxes must be heavy to provide funds for government saving, and the yields of higher taxes need to be balanced against a possible inhibition of effort and reduction of output. But, as in capitalist countries, the indirect tax seems to be preferred—not because it protects the sources and rewards of private saving but because it protects the rewards for work, skill, and responsibility.

[4] This is not to say that inflation has not been of importance. Also, it is not possible to speak about sources of investment finance precisely because tax and other revenues of the state are not earmarked for specific purposes.

[5] This, of course, assumes that investment outlets are adequate.

IV

Financial activity arises chiefly from the fact that access to outlets for investment is confined largely to specific groups of businessmen who command the requisite technical and market information and the temperament to use it. Moreover, the scope of operations of each business group is limited geographically and industrially. Saving, on the other hand, is an activity far more widely diffused through the community and carried on by persons who generally lack the skill and personal characteristics for active investment, certainly as regards the whole of their savings. In the absence of effective financial laws, agencies, and institutions, the gap between savers and business becomes a serious block to investment, the extent of which may be roughly indicated by the gap between gilt-edge rates and the rates of interest paid by ordinary businessmen, in this country or in England, say, 150 years ago, or by the similar gap which exists in underdeveloped countries today.

In developed countries the function of finance is carried on, with varying degrees of efficiency, by an elaborate mechanism involving many agencies and institutions. Its purposes, in one way or another, are to spread information, to provide brokerage, to limit obligations, to create liquidity, and to transform the relatively risky liabilities, which are the only kind that business usually can afford to accept, into the relatively safe assets, which are the only kind that savers usually can afford to hold.

In the course of this activity, and in a degree which depends on its elaboration and efficiency, two developments take place. The first is that the real cost to business of financing its investments is reduced. The savings of the community are rendered highly mobile both industrially and geographically, less burdensome liabilities are imposed on business, and more attractive assets are acquired by savers.

At the same time the real assets of the community come to be represented by a great overlay of financial assets which reflect a tremendous quantity and variety of claims, generated by the operation of financial intermediaries, and which require for their servicing an enormous flow of money transfers. Ideally these obligations need represent no burden. If all is in order, the net cost of finance to the operating units of business is much lower than it otherwise would be. The manifold transfers and retransfers of the earnings of the underlying assets are the mechanism by which successive quantities are chipped away to pay for financial services, until at last a residual sum reaches the ultimate savers that is presumably larger than they would otherwise be able to obtain from their capital. The overlay can, however, become a burden if serious mistakes are made by business and the public either in estimating the risks involved in maintaining the flow of service charges in an unstable economy or in gauging the public's willingness, in the long run, to hold securities of different kinds. In the first event the fixed charges on business and financial institutions come to be out of proportion to earnings with obvious consequences for capital values; in the second there are readjustments in values without changes in earnings. In either event the readjustments are embarrassing or disastrous to many security holders, including intermediate financial institutions. The elaboration of financial obligations may then become a bar to current capital formation. For in the ordinary course of events, industry and finance attract savings by transforming the risk of a specific venture into a lesser risk on the general credit of the business. But when affairs are out of joint, it becomes impossible to finance even excellent risks on specific current ventures because the general credit of business and finance is prejudiced by the exaggerated claims of earlier obligations or by the evaporation of capital values.

It is to this range of issues that Raymond W. Goldsmith's paper and Edward S. Shaw's succeeding comments are especially relevant. Goldsmith presents, for the first time, long-term indexes of what he calls the financial interrelations ratio (FIR), the relation between the total volume of assets and the value of the underlying items of real capital. His series provide measures of the tendency for this ratio to rise as an economy develops and its financial activity becomes more elaborate. Goldsmith's data also show how money has declined in importance among financial assets and how banks have been supplemented and, to some degree, supplanted by other financial intermediaries. His figures suggest how the size of FIR responds to monetary fluctuations, and he considers the problem of the burden of financial claims sketched above.

Shaw's cogent discussion serves to remind us that the overlay of financial obligations represents an element of service to the economic community. He suggests how, apart from the technical innovations in financing which themselves, no doubt, stimulated economic growth and gave rise to the financial overlay, the overlay may be a response to economic development. He points out, for example, that rising real incomes generate effective demands for "savings media that do not require managerial skills, for insurance of property and life and health." This, of course, poses sharply the problem of adapting the types of securities offered to the demands of institutional investors if finance is not to be a block to investment.

Shaw also raises explicitly the question of the "burden of the debt" and suggests it may be fruitfully approached by conceiving of an equilibrium between the value of real assets and the value of the financial claims that the public wishes to hold. An equilibrium FIR, he suggests, is one appropriate to the public's demand for securities of different types, itself a product of a country's stage of economic development and institutional arrangements. He challenges us to analyze the determinants of this equilibrium in specific terms and to describe the methods by which an economy adjusts when it is out of equilibrium. His own brief notes on these questions are a stimulating beginning.

V

Investment itself is the third activity involved in capital formation. The preoccupation of economics in earlier decades with questions of income distribution gave the theory of the demand for new capital goods a particular character. It made the profitability of employing additional capital depend on the existing proportions of the factors of production—land, labor, and capital. Since the theory generally extended the operation of a law of diminishing returns from the case of changing proportions of factors to that of increasing scale of production, the inference was drawn that the demand for additional capital would tend to be high where labor and land were plentiful relative to the existing stock of capital goods.[6] Comparatively recently, the problems of business cycles and persistent depression have brought to the fore the effects of the rate of population growth and of technical progress on the demand for new capital, and studies of those questions have been valuable preparation for the longer-term issues with which we are here concerned.

It remains true, however, that the expectations that emerge from even a combination of the various causes recited above fail to square with the observed course of capital formation over time and with the variety of experience in different countries. In particular, these factors are hardly enough to explain the relative stagnation of the

[6] The present writer returns to these questions in the comment with which this volume ends.

capital-poor but population-rich or land-rich countries which failed to progress during the nineteenth century and, in many cases, remain unprogressive today. Nor do these factors seem sufficient to explain the very different times at which Great Britain, the United States, France, Germany, Italy, and Japan began their periods of rapid industrialization.

In the circumstances attention has shifted to other conditions for the productivity of capital and the demand for capital goods which, in connection with other problems, had been relegated to the background of our thought. In their most general form these conditions may be referred to as the conditions of economic leadership. For the conditions of capital productivity usually emphasized in economic theory—natural resources, population, the stock of existing capital, and the state of the arts—serve only to define a set of potentialities, of unknown character and scope, for making advantageous use of additional equipment. But when these potentialities will be seized, and the extent to which they will be seized, are matters that turn on the vigor and efficiency with which human energy is applied to finding and exploiting economic opportunities. These matters raise issues concerning human motivation and political and commercial organization, sometimes thought to be outside the scope of economics, but now clearly seen to lie near the center of the problem of economic growth. The essays below attack these questions and also those of technological progress in their bearing on investment from a number of angles.

Bert F. Hoselitz and Thomas C. Cochran contribute complementary essays on the social and political environments that shaped the origins and activities of the business classes in France, Britain, and the United States. Limited space forbids any catalogue of the many-sided contributions of these papers. I mention but two points. One is the contrast they suggest between the size, aggressiveness, and motivation of a business class in societies whose feudal traditions are relatively strong and the characteristics of the same class in countries where such traditions are weak or almost absent. The other is the evolution that both Hoselitz and Cochran find in the character of business managers and of business organization in the course of economic development, an evolution shaped apparently by the changes that emerged in the problem of obtaining finance and adapting to the requirements of large-scale production.

The same range of problems is investigated again in the essays by Henry G. Aubrey and Marion J. Levy, but this time in the quite different setting provided by underdeveloped countries. Their papers are again complementary in that Aubrey places chief emphasis upon the environmental factors limiting productive investment while Levy goes on to consider the values and motivations peculiar to a noncapitalist culture which may hinder or promote industrialization.

Aubrey directs our attention to the extremely risky character of long-term industrial investment in many countries, a riskiness arising from political instability, from the difficulty of obtaining finance in the face of chronic devaluation, and from the severity of economic fluctuations in countries dependent on one or a few exports. If, therefore, real estate and inventory speculation—the policy of "quick-in and quick-out," as it has been called—engages the energies of businessmen, this may be due in good part to a canny appreciation of the economic opportunities afforded by their national environment rather than to any peculiarities in the personal goals of investors. And Aubrey reminds us, too, that the curse of the poor is their poverty. Domestic markets are small, incapable of supporting the scale of modern establishments; transportation facilities and power are lacking or expensive; the price of capital equipment is high; skilled workers, technicians, and managers are scarce. In short, the external economies created by economic growth are still to be gained, and in their absence the immediate productivity of new capital is low.

Levy's investigation confirms many of Aubrey's findings, but he also throws light on the effects of noncapitalist motivation. In prerevolutionary China, and in some other countries, he finds that the entrepreneurial role has low prestige and that much effort is directed to getting out of occupations connected with capital formation rather than staying in them. Actions requiring the adoption of new social patterns are strongly resisted. "Otherworldly asceticism" is more highly prized than mastery over the physical facts of this world. Loyalty to family is more widely approved than calculation of economic advantage.

Business enterprises are, of course, not the only centers of economic leadership. Even in capitalist countries government constitutes a supplementary center of leadership. In communist countries it is the primary center. Gregory Grossman's article provides a description and interpretation of certain aspects of the recent history of investment in the Soviet Union. From the viewpoint of the present discussion it contributes a suggestive picture of the range of considerations which are operative in investment planning in a communist state. These, as may be imagined, are radically different from the considerations controlling the calculations of private investors in capitalist countries. This difference consists not merely in the obvious capacity of Soviet planners to choose goals for the economic system which are independent of the desires of consumers and workers. Grossman's paper is especially useful in illustrating the impact on Russian planning of cost considerations—like the need to provide education, urban housing, and community facilities—which are implicit in carrying through certain investment decisions, but which are only dimly reflected in market prices and so would affect private investment planning little, if at all.

Turning now to the last of the papers dealing with factors controlling the inducement to invest, we come to the essays by Abbott Payson Usher and W. Rupert Maclaurin on technical change and innovation. In their main outlines the two papers guide us through the successive stages of the process which, in logic, but there alone, leads from fundamental scientific progress to the commercial exploitation that is the occasion for capital investment. Both papers, however, stress that, historically, the course of events does not run invariably from general principles through engineering development to commercial application. The opposite course is also common. In the view of these writers the economic environment emerges as a great conditioning factor in the history of science, and the work of businessmen bent on exploiting that environment through the medium of technological innovation becomes crucial.

In addition to this basic theme, an important section of Usher's paper draws attention to the possibility of using the theme of technical progress to interpret the course of regional growth, rather than industrial growth, as is more commonly done. If we were to generalize the view that Usher sketches, we should recognize that some of the major trends in economic development, and in the capital formation which underlies it, are associated with the impact of technological change upon the locational advantages of different regions. These advantages, which derive from the nature and quantity of a region's resources and from their geographical position, have a value at any time that is relative to the existing state of knowledge. But technical advance makes worthless resources valuable and brings inaccessible places into the stream of trade. A combination of location theory with the history of technology and with the data of economic geography may well make an important contribution to our understanding of international differences in rates of growth during the era of rapid industrialization.[7]

VI

We take notice finally of the need to consider the three activities involved in capital formation, not in isolation, but in the light of their interrelations. These are, of course, numerous, and it would be pointless in the present context even to try to catalogue them.

If we consider the literature of recent years, the relation that has attracted most attention is that between saving and investment. With regard to nineteenth-century conditions in capitalist countries, Kuznets, in company with many others, supports the hypothesis that the availability of saving placed an effective ceiling on the level of investment. With regard to conditions between the two World Wars, many believe that the opposite was true. And, with regard to underdeveloped countries, it has often been argued that the inefficiency of financial markets has placed an effective limit on both. These hypotheses, of course, are simplifications. They may prove to be adequate theories for special circumstances. In the general case, however, it is necessary to recognize that the intensity with which each activity is carried on alters the conditions under which the others operate. All three must find their place in an adequate theoretical model applicable to secular changes and international differences in capital formation. It is hardly necessary to add that such a model will not refer to capital formation alone but will need to account for the other significant elements of economic growth.

The point of view from which such models have so far been developed has been that of the conditions of economic stability. Keynes showed that one of the conditions of stability is that the volume of saving the community desires to achieve should be equal to the volume of investment it desires to undertake. More recently, Harrod and Domar have made us aware that in a progressive economy some rate of increase in investment is required as a condition of steady growth—a rate determined by the technical capacities of capital goods and the community's propensity to save out of additional income. Adolph Lowe's paper in the present volume carries this analysis into another sphere. He points out that the conditions specified above could be sufficient only with respect to money flows. They could be sufficient in physical terms as well only in a world of

[7] Cf. the comment by Walter Isard.

utterly fluid resources. But if resources are not utterly fluid, a level of investment that adequately offsets desired saving may be out of adjustment with the capacity of the capital-goods industries in equipment and trained labor. Or the rate of increase in investment required to maintain steady growth may be out of adjustment with the capacity of the machine-tool and related industries to expand the capacity of the capital-goods industries. These states of imbalance, he shows, threaten our stability and limit our ability to progress. He therefore sets himself to analyze those conditions for steady growth that are the physical counterpart of the monetary conditions defined earlier.

VII

A reader who studies this volume with attention will, I think, be impressed with the extent to which modern studies of economic growth utilize and confirm many of the earlier insights of economic historians and theorists. It is the mark of the present revival of interest in the problems of economic growth, however, that it envisages a systematic effort to organize such comparative studies of periods and nations as may make possible the formulation and testing of widely applicable theories. As W. W. Rostow points out, a number of the essays in the present volume themselves constitute such systematic comparisons or represent work advancing toward them. Rostow's own essay may be looked on as an effort to extract common elements from the work of the various contributors and to suggest some of the problems involved in working through empirical studies to fruitful theories.

Such work, manifestly, is in its infancy. Indeed, having regard to the complexity of the problem and the need to push our studies into many distinct disciplines, few students are sanguine about our ability to achieve reliable theories of useful generality. This issue, however, will not soon be settled. For the time being, the search for general theories of economic growth serves to unify the work of many students concerned with urgent practical problems. And the scope of the work itself has its uses. Its wide range has already shaken the complacency of students with regard to the sufficiency of their own specialties. From such disturbances valuable results often emerge. In particular, it seems right to say that no other problems in recent decades have so stimulated efforts toward the unification of the social sciences as have the problems of economic growth with which this book is concerned.

PART I

SOURCES AND CHANNELS OF FINANCE IN CAPITALIST COUNTRIES