ECONOMIC DEVELOPMENT

Henry H. Villard

REVISED EDITION

HENRY H. VILLARD

The City College of New York

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HOLT, RINEHART AND WINSTON, INC.

NEW YORK

CHICAGO

SAN FRANCISCO

TORONTO

LONDON

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Library of Congress Catalogue Card Number: 63-19287
29034-0413
Printed in the United States of America

M. H. Ar Dry

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PRFFACE

The average student now taking a course in economics will not retire from work until some time in the twenty-first century. For the reasons explained in Chapter 3, whether real income per person increases at 1.5 or 3 percent a year in the interim will determine whether he is likely to retire with an income of \$13,000 or \$23,000. It seems to me, therefore, that the factors responsible for differences in rates of economic development deserve far more attention than they typically receive.

The purpose of this volume is to throw light on the factors in question. It is essentially the section on economic development (Section III) of my *Economic Performance* (New York: Holt, Rinehart and Winston, Inc., 1961), modified so as to be self-sufficient.* While it is primarily designed for use in the introductory economics course, it may also be of use in advanced courses dealing with various aspects of development, as much of its contents is not readily available elsewhere. The book does not, however, assume any previous training in economics and will, I hope, be entirely comprehensible to the general reader.

Most discussions thus far of economic development have been in connection with the problems of underdeveloped areas. In contrast, Part II, comprising half of this volume, is concerned with the development of developed areas, using Great Britain and the United States as examples. Part III, constituting a quarter of the book, is devoted to the Soviet Union, both because of its potential challenge and its importance as a case of unusually rapid development. Only Part IV, making up less than a quarter of the discussion, is concerned with underdeveloped areas. Part V is designed to provide perspective regarding the importance of development by comparing the benefits of more rapid development with other possible improvements in economic performance. The individual parts are substantially independent, assuming no more than general familiarity with the national income concepts discussed in Part I.

There is unfortunately little agreement among economists regarding the factors responsible for economic development. In the absence of

^{*}Section III is in turn a revision and updating of the original edition of *Economic Development* (New York: Holt, Rinehart and Winston, Inc., 1959).

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agreement one alternative is to catalogue all the factors that have ever been mentioned without attempting to indicate their relative importance. This definitely has not been done. Because, for example, there appears to be convincing evidence that changes in technology rather than in the quantity of capital have been the most important factor in the improvement in our living level since the Civil War, I have devoted four chapters to research and innovation and one to capital formation. Again, because the prospects for underdeveloped areas seem to depend heavily on the rate of growth of their populations, I have devoted much attention to this aspect of the matter. Moreover, in the course of the discussion I have made it clear that I think our present research performance inadequate and continued population growth undesirable. In short, I have presented the factors that seem to me to be most important and have made no effort to conceal my appraisal of their significance. This is in the nature of a warning. The reasons for proceeding in this way are set forth in the final section of Chapter 1.

As I acknowledged my unusually large debt to others in *Economic Performance*, I shall repeat here only my general thanks for the generous help that I have received.

HENRY H. VILLARD

New York, New York June 1963

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PART I

Introduction

1 What Economics Is About

The Meaning of Economics

What is economics about? Various definitions are possible. A famous one is that "economics is a study of mankind in the ordinary business of life," covering the acquiring and use "of the material requisites of well-being." Another, equally famous, says that economics deals with "those aspects of man's activities that can be subjected to the measuring rod of money." Neither definition is particularly precise. This is as it should be, because the field covered by economics is itself not precise. For the activities devoted to the satisfaction of man's material needs and desires cannot be precisely separated from his other activities.

Does this emphasis on material needs mean that economists feel that such needs alone are important? Definitely not. Activities devoted to satisfying material needs are not necessarily the most numerous or the most important of the things man does. But they do seem important enough to be worth systematic study. Man may not live by bread alone; equally he does not live without bread.

It is true that economists sometimes point out that a desire for material things and a willingness to work hard for them is helpful in making an abundant supply of such things available. Hence those who feel that the world is too materialistic—that people want too many goods and gadgets—sometimes criticize economics as catering to man's 2 Introduction

baser desires. But the ability of an economy to produce an abundance of goods with a sufficiency of labor equally enables it to produce a sufficiency of goods with a minimum of labor; and nothing in economics as such favors a plethora of goods rather than a plethora of leisure to contemplate the good life.

There may, of course, be a day in which economics ceases to be important. If we wanted no more material things than could be made available by the amount of work that people would undertake for the pure fun of working, then all material things might become as free as air. But, despite the highest standard of living the world has ever known, even in the United States only air is free. And when the magnitude of the things that people would like to have is compared with the amount that we are able to produce, it looks as if scarcity—with which economics deals—will be with us for a long time.

The Requirements for Production

Why are the things people want scarce? In part it is because, whether they ought to or not, people want a lot of material things. But it is also because we are able to produce only limited amounts of the things people want. Why cannot more be produced? In general, production is made possible by the "factors of production"—natural resources, labor, and capital—and a technology which allows them to be combined so as to result in useful products. Unfortunately the quantity of our productive factors and the quality of our technology is so limited that we cannot produce as many material things as we would like to have. Let us therefore examine each of these limitations in some detail.

Natural resources include the free gifts of nature provided without effort on man's part—land, the ores and fuels under the land, water-power sites, and the like. In one sense nature is niggardly: most of the available resources are in forms that are not immediately useful. True, a few tropical islands have food available for the taking, but they are the rare exception. On the other hand, nature is generous in the sense that available resources are widely scattered over the globe, so that no one area or country has a monopoly. It is, of course, pleasant to find oil in the back yard—so much so that for a while average incomes in Kuwait were higher than those in Great Britain as a result of the oil discovered there. But the importance of resources is generally overestimated, for they are so widely available that their contribution to production, as measured by the share of production they receive, is quite small.

Labor is required to turn resources into useful things. The importance of labor tends to be underestimated, for roughly 80 percent of all production is received by labor in payment for its contribution. But, if

labor were applied directly to resources, not much would result. It is because tools are available that labor is so productive.

These tools are part of capital, which in essence represents resources combined with past labor to produce things that facilitate further production. Note that we are here interested in real capital—actual physical facilities-rather than the sums of money that the word "capital" conveys to many people. Specifically, capital includes industrial plant and equipment, our transport system, stocks of goods in the process of being fabricated, and even finished goods waiting to be sold. All of these, in the last analysis, represent a combination of natural resources and labor; even such things as blast furnaces and diesel locomotives represent simply iron ore from the Mesabi Range, rearranged by labor performed in the past. At any point of time capital is not so different from natural resources; it is part of the means of production of any economy. But over periods of time it differs in that it has to be maintained. Some tools, for example, wear out in a matter of minutes; other useful things, such as railroad embankments, have a life so long and require so little maintenance that, once built, they become similar to natural resources. But most things useful for production fall in between and have to be renewed every few years.

Last, but by no means least, is *technology*. In the long run, technology may be defined as the way in which labor can be applied to natural resources, which in turn determines the form taken by our capital equipment. In the short run, however, a particular technology is embodied in the available capital of any economy and cannot, therefore, be changed immediately. But we shall see that even over relatively short periods of time, the importance of changes in technology can be immense.

Two Economic Problems

The factors of production possessed by any economy are limited in amount: natural resources by the niggardliness of nature, labor because men wish to work only a limited number of hours, and capital if only because it is a combination of natural resources and labor. As a result we have a limited production of the material things people want because we have only a limited supply of the factors that make production possible. It follows that all economies—whatever their character—must solve two basic problems. The first involves "economizing"—using the limited available quantities of natural resources, labor, and capital so as to satisfy most effectively the material wants of the population in the light of currently available technology. The second involves "economic development"—providing for increasing production as time passes, pre-

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dominantly through improvements in technology. The first problem, in short, is how to get the most out of what we have; the second is how we can get more in the future.

Note that every individual faces two quite similar problems: how to allocate his present income among all available goods so as to maximize the satisfaction that his income provides, and how to increase his income over time. Clearly, if part of today's income is spent on education or saved, future income is likely to increase; if part is spent on too much alcohol, future income may well decrease. So the two problems are closely related. But they are nonetheless sufficiently distinct to make separate consideration desirable.

Economizing

How best to use what we have—how best to economize—has received a great deal of attention from economists, so much so that there have been economists who treated economizing as if it were the whole of economics. Perhaps the shortest and most used definition of economizing is "the allocation of the scarce means of production among alternative uses"—the uses including everything, from cabbages to Cadillacs, that we are capable of producing.

Most discussions of economics are primarily concerned with the way in which the scarce means are allocated and the economizing problem solved. Hence detailed consideration of what is involved is not necessary here. But some estimates of the magnitude of possible improvements in economizing are presented in Chapter 20, to provide perspective regarding their relative contribution to the possible overall improvement in economic performance discussed in Chapter 21.

Economic Development

How we can get more in the future—the problem of economic development—is, then, our major concern in this volume. The matter is discussed in a preliminary way in Chapters 2 and 3, and in detail throughout the rest of the volume. Note that, while the manner in which free enterprise economizes is usually discussed with currently available technology taken as given, much of the discussion of economic development will center on the effectiveness of our devices for achieving improvements in technology. In contrast to the discussion of economizing, on which a large measure of agreement has been reached among economists, economic development is a matter that has only quite recently begun to receive systematic consideration and on which relatively little agreement as yet exists. But, in terms of potential contribution to overall economic

performance, we shall find that economic development is of immense importance; it is this importance that justifies consideration of a subject about which economists still have a great deal to learn.

Measuring Output and Income

We have seen that, in its various aspects, economics is concerned with the ability of an economy to provide appropriate goods and services for the satisfaction of material wants. How can we measure an economy's output of goods and services? What we are particularly interested in measuring is the quantity of output that can be continuously utilized without depleting the stock of goods inherited from the past. How can this best be done? We may start with the fact that in any period conventionally a year—vast quantities of goods and services are produced. But many of them are used up during the period in creating other goods and services. If wheat is milled into flour and the flour made into bread, we obviously do not want to total the value of the wheat, the flour, and the bread. To do so would involve double counting and overstate the production achieved. There are two conceptual ways in which such duplication may be eliminated. We may include in the total only the value of output at the point of final purchase—as when bread is sold to the housewife—and in this way eliminate intermediate production. Or we may measure the value added at each stage of production. For, in the example of bread, the sum of the original value of the wheat (all of which is added by the farmer) and the value added by the miller to the wheat, by the baker to the flour, by the distributor to the bread as it comes from the bakery, and by the retailer to the bread bought at wholesale will be equal to the value of the bread sold to the housewife.1 When double counting is eliminated by one or the other of these techniques, we obtain the gross national product, which is nothing more than the total production of all goods and services adjusted to eliminate duplication. This is the broadest available measure of production; it is widely used, usually being referred to as the GNP.

Net National Product and National Income

In any period the capital equipment of a country deteriorates. Mostly this is the result of the actual use of such equipment to make the production of the period possible. But equipment also deteriorates even

¹ To make the two approaches completely identical it is necessary that increases or decreases in inventories of unfinished goods be treated similarly. This can be done, for example, by treating inventories as a special point of final purchase or a special stage at which value is added.

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when it is standing idle or, as a result of the availability of new and improved technology, becomes less valuable even though unchanged physically. If businessmen are to maintain their capital intact—so that they have as much capital at the end of the period as they had at the start—they must systematically set aside depreciation allowances equal to the decline in value of their capital occurring in each period. Actually such allowances are inevitably subject to a considerable margin of error, as they attempt to estimate the economic rather than the physical life of the capital equipment involved. In any event, however calculated, depreciation allowances, together with certain other minor deductions, are collectively called "capital consumption allowances" and have to be deducted from gross national product to determine the quantity of goods and services that are available as a result of the production of any year without reducing the stock of capital in existence at the start of the period; this is called the "net national product."

One more deduction is necessary. In the currently most common usage, the contribution of government to production in any period is taken as equal to government purchases of goods and services (including the services of those employed by government), which we may for short call "the cost of government." But part of the cost of government is met by taxes levied on the businesses of the country, which are paid by the businesses themselves rather than by their owners. These taxes, which are called "indirect business taxes," must be deducted from the net national product if we are to get the income received by the factors of production. The result is called the "national income," which is also equal to the value of the goods and services received by the factors of production (including in such goods and services that part of the cost of government which is paid for by taxes levied on the factors of production rather than on business).

Estimates for 1960

Thus in 1960 gross national product, or the total value of all the goods and services produced by the American economy with duplication eliminated, was \$504 billion. Of this, business as a whole set aside \$43 billion in capital consumption allowances to offset the depreciation of its capital equipment, so that net national product, or the production available without depleting capital, amounted to \$461 billion. Of this, \$44 billion was contributed by business, in the form of indirect business taxes and related items, toward meeting the cost of government, so that the national income, or the amount accruing to the general public.

was \$417 billion. Of this total, in turn, \$329 billion was spent on personal consumption, \$32 billion was saved and invested (gross investment less capital consumption allowances), and the remaining \$56 billion went to pay for that part of the cost of government that was not covered by indirect business taxes, as Table 1-1 makes clear.

TABLE 1-1

National Income and Product in 1960

(In billions of dollars)

| Gross National Product | 504.4 | Gross National Product | 504.4 |
|--------------------------------|-------|-------------------------------|-------|
| Capital consumption allowances | 43.1 | Personal consumption expendi- | |
| | | tures | 328.9 |
| Net National Product | 461.4 | Gross investment | 75.4 |
| Indirect business taxes | 45.6 | Government purchase of goods | |
| Minor items | -1.3 | and services | 100.1 |
| National Income | 417.1 | | |
| Compensation of employees | 293.7 | | |
| Rental income of persons | 11.7 | | |
| Net interest | 18.4 | | |
| Proprietors' income | 48.2 | | |
| Corporate profits | 45.1 | | |

Source: Survey of Current Business. Components do not always add to totals because of rounding errors.

Any number of detailed breakdowns of these basic concepts are possible, some of which are presented in Table 1-1. National income, for example, can be divided into compensation of employees, corporate profits, proprietors' income, net interest, and rental income of persons. Again, gross national product may be broken down into personal consumption expenditures, gross investment, and government purchases of goods and services. Just what is included in each case should be determined before a category is used, for the descriptive titles are often misleading.

Current versus Real Income

In the various measures of income we have discussed, the goods and services produced are usually valued in *current prices*—those prevailing in the year in question. This means that when output and prices are rising, the increase in income is the product of the larger quantity of