

Economic Growth and Resources

**Volume One
The Major Issues**

**Proceedings of the
Fifth World Congress of the
International Economic
Association held in
Tokyo, Japan**

**Edited by
Edmond Malinvaud**

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International Economic Association
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EDMOND MALINVAUD

President 1974–77



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List of Contributors to this Volume

- Professor Moses Abramovitz, Stanford University, USA
Professor Irma Adelman, University of Maryland, USA
Dr Odd Aukrust, Central Bureau of Statistics, Oslo, Norway
Professor Edmar L. Bacha, University of Brasilia, Brazil
Professor A. K. Bagchi, Centre for Studies in Social Sciences, Calcutta, India
Professor Wilfred Beckerman, Oxford University, UK
Professor Bela Balassa, World Bank, Washington, USA
Professor Oleg Bogomolov, Institute of Economics of the World Socialist System, Moscow, USSR
Professor Mogens Boserup, University of Copenhagen, Denmark
Professor Martin Bronfenbrenner, Duke University, North Carolina, USA
Dr Nicholas Bruck, Washington, USA
Professor Béla Csikós-Nagy, Budapest, Hungary
Professor D. Delivanis, University of Thessaloniki, Greece
Dr Uka I. Ezenwe, Ahmadu Bello University, Zaria, Nigeria
Academician N. P. Fedorenko, Academy of Sciences, USSR
Professor Herbert Giersch, Institut für Weltwirtschaft, Kiel, F.R. of Germany
John Hardt, Congressional Research Service, Washington DC, USA
Professor Geoffrey Heal, University of Sussex, UK
Professor Hendrik Houthakker, Harvard University, USA
Dr Madhur Srinivas Iyengar, Delhi, India
Mr Michael Kaser, Oxford University, UK
Professor John W. Kendrick, US Department of Commerce, Washington DC, USA
Academician T. S. Khachaturov, Association for Soviet Economic Scientific Institutions, Moscow, USSR
Professor Irving B. Kravis, University of Pennsylvania, USA
Dr Constantino Liuch, World Bank, Washington, USA
Professor Edmond Malinvaud, President IEA, Paris, France
Professor Evgeni Mateev, Sofia, Bulgaria
Professor R. C. O. Matthews, Clare College, Cambridge, UK
Professor Franco Modigliani, Massachusetts Institute of Technology, Cambridge, USA
Professor Costin Murgescu, Academy of Social Sciences, Bucharest, Romania
Professor Tasuku Noguchi, Keio University, Tokyo, Japan
Professor Kazushi Ohkawa, Hitotsubashi University, Japan
Professor Józef Pajestka, Planning Commission, Warsaw, Poland
Dr K. N. Raj, Centre for Development Studies, Ulloor, Kerala, India

- Professor Zdzislaw Sadowski, Institute of Planning, Warsaw, Poland
M. Christian Sautter, Institut National de La Statistique et des Etudes
Economiques, Paris, France
Professor Tibor Scitovsky, London School of Economics, UK
Professor Richard Stone, Cambridge University, UK
Professor Akira Takayama, Purdue University, USA
Professor Shigeto Tsuru, Hitotsubashi University, Japan
Professor Victor Urquidi, El Colegio de Mexico, Mexico
Professor Georg Winckler, University of Vienna, Austria

Introduction

Edmond Malinvaud

PRESIDENT IEA, PARIS, FRANCE

This volume publishes part of the work done for and during the Congress held in Tokyo in the summer of 1977 by the International Economic Association. More exactly, it gives the full proceedings of the plenary sessions, whereas four other volumes will publish a selection of the papers presented in specialised sessions.¹

A congress, intended as a gathering of a great number of economists coming from distant countries and distant subdisciplines, should ideally have a rather broad programme and should be concerned with questions arousing a wide interest both for research and for decision-taking. Economic growth undoubtedly meets this requirement; moreover, in the 1970s one could not speak of economic growth without paying some attention to the use of the resources that make it possible.

On the other hand, the subject could easily have become too broad, have finally covered almost the whole of economics and have been so diluted as to leave too few opportunities for profound scientific interchange. Hence, some delimitation had to be chosen so as to avoid this risk.

The book begins with the search for an explanation of why economic growth has been so rapid in the developed capitalist countries during the three decades following the last world war. Then two more specific questions of great interest are taken up successively: the changes in inequality and the prices of exhaustible resources. The planning of economic growth comes next, but of course a special main article and discussion is devoted more particularly to the growth policies of developing countries. Finally, it was thought the Congress should seriously consider the present misgivings about what economic growth achieves for the people of the world; such is the purpose of the last main article.

The book ends with six short reports given during the last day of the Congress and respectively presenting the work done in six groups of specialised sessions.² The themes of these groups were:

- (1) past economic growth and its measurement;

¹ See R. C. O. Matthews (ed.), *Economic Growth and Resources: vol.2: Trends and Factors*; C. Bliss and M. Boserup (eds.), *Economic Growth and Resources: vol.3: Natural Resources*; I. Adelman (ed.), *Economic Growth and Resources: vol.4: National and International Policies*; S. Tsuru (ed.), *Economic Growth and Resources: vol.5: Problems Relating to Japan*.

² The full programme of these sessions is given at the end of the book, pp. 264–72.

- (2) factors of economic growth;
- (3) resources for future economic growth;
- (4) prospects of economic growth, economic policies and regulations;
- (5) international division of labour and co-operation in economic development;
- (6) growth and resources problems related to Japan.

These six reports give to the present book a breadth that would have been lacking otherwise; they exhibit the wide range of topics that economists consider in order to permit a better knowledge and better control of economic growth; they present the views that were entertained in 1977 on these various topics.

In the opening paper Moses Abramovitz scrutinises the postwar economic growth of capitalist countries. He argues that a special set of circumstances made the potential for productivity growth strong and enabled developed countries to exploit that potential rapidly, in concert and over a long period. Some of these circumstances were transitory and have now weakened or, in some cases, disappeared. The prospects for an early renewal of the postwar growth drive at the same rapid pace has, then, become uncertain and dubious.

The discussion of this paper bears both on our understanding of the past thirty years and on its implication for future growth in capitalist countries. Pointing to the fact that growth was also rapid in the developing countries and in Eastern Europe, Richard Stone questions whether the special circumstances experienced in the west were really the determining factor. Kazushi Ohkawa's contribution leads us to realise that we know still very little about the factors explaining the 'social capabilities' of a country and that variations in these capabilities may play an important role both in explaining the past and in forecasting the future. Notwithstanding minor differences of appreciation, all the contributors agree that, whereas growth is very likely to be slower in the coming decades, it still will be fast by prewar historical standards.

Edmar Bacha approaches the difficult question of knowing how economic growth is related to changes of inequalities, more precisely to changes in the size distribution of incomes. The first part of his paper surveys the many empirical studies that have recently been made on this question and shows that they validate the 'Kuznets curve' as a rough relation between income inequality and average real income per head (inequality tending to first increase with average income, then decrease with it); moreover the maximum of the curve seems to have drifted toward higher real income levels. The second part of the paper considers some explanations that have been offered for this phenomenon. Is it a reflection of the first increasing then decreasing dualism experienced by an economy through its development, as the structuralist school claims? Or a reflection of the development of education, as is argued by proponents of the human capital theory? Or is it a purely accidental statistical regression between national experiences that vary greatly according to the policies followed? Or should the explanation of this regression be found

outside of economics, namely in wars and revolutions, the only significant determinants of important distributional changes?

The discussion takes up the two parts of the paper. On the statistical regressions, caution is required because the data used suffer from a number of pitfalls (incomplete coverage or reporting, lack of international or inter-temporal comparability, and so on) and the picture that emerges is certainly not as simple as a curve would suggest. As to the explanation, it would be very difficult to obtain a consensus among economists at present, except on a general statement to the effect that the mechanisms at work are complex, and involve not only economics but also politics and vary a great deal over time as well as among countries. But this is a lively field in which the present accumulation of better data and the intellectual efforts to analyse them are promising.

In his study of the long-run movement of prices of exhaustible resources, Geoffrey Heal starts from abstract theory and then confronts it with actual data. The theoretical literature, which is now well-developed, leads to simple and clear conclusions if perfect competition is assumed. For energy resources and basic minerals such an assumption is often particularly inappropriate. But it turns out that various specifications of imperfect competition lead to the same qualitative result, namely that the price of the resource should rise, and this at a rate which is dependent upon the rate of return on other assets.

However, the historical series of the real prices of resources during the last century exhibit considerable instability and do not show a clear upward trend. To reconcile theory and facts, the author only needs to consider, first, disequilibrium behaviour, and, second, changes in expectations associated with increases in known stocks and unanticipated cost reductions in extraction or in the production of substitutes. The presence of arbitrage between resources and other assets can be well tested on series for the 1960s and 1970s. The results are again not quite those the theory would predict; the principal cause of difference seems to be found in the manner in which expectations are formed.

The discussion permits some clarification on a number of points: how should the basic formula on the rate of increase of the price be revised when account is taken of the fact that the extraction cost of the resource is not *a priori* given? To what extent does the actual instability of resource prices depend on the way in which expectations are formed? What are the sources of bias in the historical series on the real price of resources?

The discussion also raises broader issues. In particular, motivated by the concern for a new economic order in the trade relations between developing and developed countries, B. Csikós-Nagy addresses some of his comments to those who attempt to forecast the price developments up to the end of this century. Pointing to the role of monopolies in the pricing of primary products, he insists that the respective political powers of producers and consumers will play an important role.

After a long introduction on the past achievements of the Soviet Union, T. Khachaturov and N. Fedorenko approach the important topic of planning

the future utilisation of existing resources. They forcefully argue for a reduction in the large-scale waste of energy and materials that occurs with present methods of production. They show that such a reduction has already occurred to some extent. They exhibit the prospects for quite substantial further progress in this respect, thus contradicting the pessimism of the famous Meadows report. But they state the necessity of appropriate planning for a realisation of these prospects.

The discussants agree that doomsday resource pessimism is ill-founded because great possibilities still exist for new discoveries, for technical progress and for more economical production or consumption patterns. The necessity of the form of central planning now existing in Eastern Europe is, however, questioned by some economists; doubts are raised about its efficiency in resource saving. Michael Kaser voices a plea for studies assessing the relative efficiencies in this respect of various economic systems.

Two discussants devote their comments to the contribution that theoretical economists can make to a better planning of resource use. A. Takayama shows that the theory of optimal growth can throw light not only on the choice of the rate of exhaustion of depletable resources but also on the allocation of labour to research activities; he builds and solves two models exhibiting the optimal strategy in this respect. J. Pajestka argues that development analysis should not draw only on economics narrowly understood, but should study also socio-economic linkages as well as societal goals.

Writing about the 'barriers to development', K. N. Raj focuses his attention on the poorest countries of Africa and Asia. He notes that there is considerable agreement that 'the cards are stacked against them both internally and externally'. The internal obstacles to development come partly from the pressure of population on land and from the importance of the institutional changes required for raising productivity in agriculture, but mainly from the economic and power structure, from the interests and values it upholds, and from the limitation of choices that can be effectively made within such a framework. The external obstacles result from the fact that, since the Second World War, the already developed countries have become their own best customers and suppliers; expansion of world trade cannot be depended on to promote growth in the underdeveloped world to anything like the same degree as was possible earlier for most of the now developed countries. In the ultimate analysis, the internal and external barriers to development are basically political in nature.

While all are in agreement with this last statement, the discussants exhibit a rather wide spectrum of opinion. Several of them accept V. L. Urquidi's argument showing that the pressure of population on land is not an absolute negative factor and can be successfully faced by integrated rural development projects. Some discussants feel more generally that K. N. Raj overestimates the internal obstacles following from the present technologies of production or consumption and that national efforts can overcome these obstacles.

But the largest part of the discussion of this chapter concerns external

barriers. B. Balassa argues that the poor performance of many less developed countries results from a bad policy choice favouring import substitution in manufacturing at the expense of agriculture; he points to the success of the few countries that have followed export-oriented policies during the past two decades; he stresses the scope for further increase of exports from the third world with accompanying progressive changes in comparative advantages. Other discussants are less optimistic, feeling that the developed countries may become more protectionist in the future, this being particularly likely if many other developing countries adopt export-oriented policies.

Dealing with the costs of growth — that is with the unfavourable implications of modern economic growth — E. Malinvaud tries to see what is the nature of these effects and to explore whether and how some of them might be avoided, even if this would mean slower growth. He considers, first, the costs associated with changes in the physical produced and non-produced resources (physical costs); second, the costs associated with labour mobility, social inequality and concentration (social costs); and, third, the appropriate balance between costs and satisfactions, some of the latter turning out to be illusory.

The discussion reveals the wide range of different meanings that is given to the catch-words 'costs of growth'. S. Tsuru examines how our current measures of output (GNP) should be revised so as to better estimate the *net* result of production. A. K. Bagchi argues that the growth of the now developed countries was made at the cost of the rest of the world. R. Matthews makes a plea for active research on the nature and extent of social externalities in consumption. The discussion also reveals that these are subjects about which objective knowledge definitely lags behind public concern. But the already existing body of theory is often relevant and should not be neglected either, as is forcefully demonstrated by F. Modigliani.

Among the topics that were not considered, two are particularly worth mentioning. First, studies of the trade cycle, or more generally of short-term economic trends, were deliberately omitted; this meant that policies for the regulation of business conditions could not be dealt with either, notwithstanding their crucial importance at the time when the Congress was held (they were occasionally touched upon, nevertheless, in the specialised sessions dealing with economic policies). Second, human resources were not considered, and attention concentrated on natural resources (a paper on population forecasts in a specialised session was regarded as necessary in relation to the evaluation of food and energy requirements). The economics of human resources is, of course, an important and lively area of study — so much so that it has been selected as the subject for the next Congress to be held in Mexico in 1980.

Ideally, the plenary sessions should have covered the full range of questions concerning economic growth so delimited and the use of natural resources that were particularly topical in the mid-1970s and attracted research from a large number of economists. It was, however, a strong constraint to try to achieve

this aim within the format of only six main papers. Moreover, the choice of themes and of speakers may have in practice reflected to some extent the views of the Programme Committee¹ and has been subject to such random circumstances as always occur in human undertakings.

The study of economic growth has both positive and normative aspects. Its purpose may be to understand and explain the facts; or it may be to decide and implement a policy. In this field, much better than in the study of short-term trends, the literature usually distinguishes the two aspects. Indeed, within this volume the first three main papers are oriented toward the answering of positive questions, while two out of the three remaining main papers concern economic policies, with the last having both a positive and normative purpose.

It is out of the question to summarise here the six reports published at the end of this book, because each one of them is already a brief summary of a substantial number of papers and of the discussions that followed their two-day presentation. But so as to present an overview of what was discussed at Tokyo within the specialised sessions, it may be appropriate to list the main topics considered, roughly in the order in which they appear in the first five reports, and then to make brief reference to the work concerning Japanese growth.

This leads to the following list:

- (1) the measurement of aggregate growth; why, notwithstanding its inadequacies or inaccuracies, the GNP is not likely to be displaced in its role as such a measure;
- (2) phases of capitalist growth; why one should expect growth to be slower now than during the 1950s and 1960s;
- (3) growth in the third world; the weaknesses of the statistical documentation in this field; the diversity of experiences, many of them rather disappointing; theories to explain them;
- (4) the interrelationship between inequalities and development; the appropriate policies for reducing inequalities;
- (5) why the accumulation of capital, both material and human, remains a determining factor of economic growth;
- (6) the structural changes that are required in various regions of the world in order to permit future growth;
- (7) how agricultural progress can be stimulated in developing countries;
- (8) the crucial role of technical progress; how it can best be promoted by public support or by price incentives;
- (9) the long-term transition from fossil to non-fossil sources of energy; why collaboration between physicists and economists is required;

¹ Chaired jointly by E. Malinvaud and S. Tsuru, the Programme Committee consisted of M. Abramovitz, S. Chakravarty, T. Khachaturov, A. Lindbeck, R. C. O. Matthews, Z. Sadowski, R. Solow, O. Sunkel, H. Uzawa and C. von Weizsäcker.

- (10) the reorientation of consumption toward resource-saving patterns;
- (11) appropriate macroeconomic and structural policies to face the difficulties that growth will now encounter;
- (12) international conditions of growth; can the major impetus to development of poor nations come from the inside or does it depend on outside transfers and circumstances?
- (13) what is the nature of the demand for a new international economic order? What can be expected from various proposals concerning this new order?

A good many of these topics were again discussed in the sessions concerned with growth within one particularly interesting country, Japan. Attention was also in this case devoted to environmental problems, which perhaps did not receive elsewhere in the Congress the place they should have had. Above all, the quality of these discussions must be noted. Not only has Japanese growth attracted the interest of a number of leading economists throughout the world, but also economic research on this subject within Japan has been booming. The debates exhibited a high scientific and cultural maturity, not less so when Marxists confronted their views or analyses with those of their more classical colleagues.

Looking at this book as a whole and more generally at the work done during the Tokyo Congress, one may of course deplore that some lines of research were not given more attention. In each case the questions then arise: was it because the Programme Committee did not think this particular line had a relevance to the Congress? Or was it because there was very little worth reporting, so that economic research has been unable to make significant progress?

I shall not try to survey the whole field here and to give for each case my personal answers to these challenging questions. I must, however, make a brief reference to the abstract theory of growth, which was almost entirely absent from the Congress. It is fair to say that this was a deliberate choice of the Programme Committee. Since the Congress was intended as a gathering of economists with very varied interests, it seemed wise to concentrate on substantive issues and to neglect, on this occasion, the current research on fundamental abstract theories. Such research is the work of a few mathematical economists and pure theoreticians who have their own meetings. Perhaps one or two survey papers evaluating this work would have been welcome. They will have to be found elsewhere.

As it is, the book well testifies that growth is now a popular subject among economists, that they have succeeded in identifying a number of sub-fields within the study of this general subject and that, on each of the main topics, a methodology exists, as well as substantive results, which can be explained to the layman.

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1 Rapid Growth Potential and its Realisation: The Experience of Capitalist Economies in the Postwar Period¹

Moses Abramovitz
STANFORD UNIVERSITY, USA

Dramatic statements about the remarkable growth of the industrialised market economies are by now superfluous. The forces which account for this notable experience, however, still challenge explanation. And without a well-tested explanation, we are in a poor position to say whether rapid growth has now come to an end or whether it is likely to be resumed. Equally, we are in a poor position to suggest what policies might regenerate and sustain rapid growth were that an agreed aim of public policy.

Although, as said, we do not as yet have a well-tested explanation, a good deal of ground has been cleared, and the elements of a general understanding of the causes of rapid growth have begun to come into view. This being the case, I think it will be useful to try to draw these together as well as I can. This may help us discover how much agreement there is about the factors underlying postwar growth. And it may help us see where the empirical basis of our theories is especially weak and where, therefore, future work ought to be directed.

Both the breadth of this assignment and the limits of my own competence require that I restrict attention to the experience of the industrialised market economies as a group, and, correspondingly, to the common causes which I see behind it. A general view of this experience should help us understand the

¹I should like to acknowledge the help I have had from Paul David. This paper has benefited not only from his critical reading, but also from his insights, shared during a long collaboration.

I must also acknowledge special intellectual debts to many contributions to the postwar growth literature. These include the growth-accounting calculations of John Kendrick, Edward Denison, Dale Jorgenson and others; the historical and analytical studies of Europe and Japan by Angus Maddison, of Japan by Ohkawa and Rosovsky, of France by Carré, Dubois and Malinvaud, and of Italy by G. Fuà, as well as still unpublished studies of the UK by Matthews, Feinstein and Odling-Smee, of Sweden by R. Bentzel and of Germany by Bombach and Gerfin; also the studies of structural change and the role of labour supply by Kuznets, Kindleberger and Kaldor and the collaborative Brookings volumes on the postwar economies of Britain and Japan.

differences among countries in their rates of growth, in so far as those differences have a systematic character. But I do not try to account for the utterly extraordinary speed of Japanese expansion or what is, from some perspectives, the equally divergent relative slackness of the British pace.

In this paper, I confine attention to one aspect of growth: namely, labour productivity as measured by output per worker. I treat the forces determining rapidity of productivity growth as falling into two classes: those governing the potential for productivity growth during the postwar era and those controlling the pace at which that potential was exploited. By the potential for productivity growth, I mean, first, the opportunity for progress which is presented by the enlargement in technological and organisational knowledge which took place in the course of the postwar period. I mean, second, the opportunity for productivity growth which exists when a country, relatively advanced in the state of its political, commercial and financial institutions and in its degree of technical competence, nevertheless finds itself behind the industrial leader in the level of achieved productivity. In that case, the country's degree of initial backwardness in productivity can be regarded as the rough measure of a gap between existing and potential productivity, and therefore, of the advance potentially open to it in the course of capital turnover and expansion and accompanying economic reorganisation. On the other hand, the absorption and application of potential advances in productivity — whether these are contemporaneously generated or available from a pre-existing, still unexploited stock of knowledge — involve several responsive economic actions: accumulation of both tangible and human capital per worker, together with a change in design of structures and equipment and content of education; enlargement of the scale of production, accompanied by greater specialisation of productive establishments, worker tasks and machine designs; change in the industrial distribution of labour, capital and output; and research and development effort to adapt new techniques to the resource endowments and scale constraints of particular markets and economies. The pace of exploitation of potential productivity growth should, therefore, be viewed as controlled by the speeds at which these economic responses take place and, at the next remove, by the conditions governing those speeds of response.

My paper's general thesis is simply stated. A special, but transitory, set of circumstances made the postwar potential for productivity growth strong and enabled developed countries to exploit that potential rapidly, in concert and over a long period. Some of the favouring circumstances arose from the Second World War itself, some from the frustration of normal growth caused by war, political upheaval and depression during the longer period beginning in 1914; some reflected the stage of development which a number of industrialised countries had reached; and some rested on national and international political and economic arrangements which have now broken down. Of course, there are other forces — an expanding technological frontier, rising education, growing managerial competence — which continue to work steadily for material progress. However, the importance of the essentially transitory influences in