Volume Title: International Comparisons of Prices and Output

Volume Author/Editor: D. J. Daly, editor

Volume Publisher: NBER

Volume ISBN: 0-870-14244-5

Volume URL: http://www.nber.org/books/daly72-1

Publication Date: 1972

Chapter Title: Introduction to "International Comparisons of Prices and Output"

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Chapter URL: http://www.nber.org/chapters/c5092

Chapter pages in book: (p. 1 - 9)

Introduction

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AS we enter the 1970's a large number of countries, both developed and developing, produce national accounts and national income data with varying degrees of detail and of varying levels of quality. The presentation of the accounts and the uses to which they are put are heavily influenced by J. M. Keynes's *General Theory of Employment, Interest, and Money* [1] and by the heavy emphasis, in subsequent discussions of both a theoretical and an applied variety, on factors affecting the levels of demand.

However, in the history of economic thought, the early work on national income emphasized its use in appraising differences in living standards and the efficiency with which resources were used in different countries. In current terminology, Adam Smith's *Wealth of Nations* [2] would be called the "National Income of Nations." Much of it concerned the factors contributing to differences in standards of living between countries. Alfred Marshall's *Industry and Trade* [3] provides a comprehensive appraisal of some of the factors contributing to the differences in national income, productivity, etc., for some of the major industrialized countries, such as the United States, the United Kingdom, Germany, and France. *Industry and Trade* contains insights on many aspects of these intercountry differences that are relevant to this conference volume. The general emphasis of this volume is on the use of national income concepts and data to appraise the supply and output side of national economies and some related aspects of international trade.

1 J. M. Keynes, *General Theory of Employment, Interest, and Money,* London, Macmillan, 1936.

2 Adam Smith, *The Wealth of Nations,* New York, Modern Library, 1937.

3 Alfred Marshall, *Industry and Trade: A Study of Industrial Technique and Business Organization,* London, Macmillan, 1920.

Earlier conference volumes have dealt with the conceptual and practical problems of achieving international comparability of various countries' national income estimates that are calculated in their respective currencies.[4] The work of the United Nations and the Organization for Economic Cooperation and Development in national accounts and of the International Monetary Fund on the balance of payments have facilitated a broad measure of international comparability for a large number of countries. However, the considerably more difficult task of comparing the levels of prices and real national product between countries has received much less attention in past conference volumes. To some extent this reflects the primary interest of the membership of the conference in economic developments within the United States, but it also reflects the relatively limited amount of resources going into this field in the world as a whole.

Volume 20 in the Income and Wealth series, *Problems in the International Comparison of Economic Accounts*,[5] contains several important papers relevant to this volume. Among them are "Measuring Comparative Purchasing Power," by Dorothy W. Brady and Abner Hurwitz, and the comments on it; and Irving B. Kravis's "The Scope of Economic Activity in International Income Comparisons," the comments by Everett E. Hagen and Jacob Viner, and the reply by Kravis.

Volume 25 in the series includes a paper by Milton Gilbert and Wilfred Beckerman on "International Comparisons of Real Product and Productivity by Final Expenditures and by Industry." [6] It reviews the conceptual basis of such comparisons, discusses the possibility of differences in taste between developed countries, and reviews the statistical features of the two approaches, using comparisons between the United Kingdom and United States.

[4] For example, T. C. Liu and S. Fang, "The Construction of National Income Tables and International Comparisons of National Incomes," in *Studies in Income and Wealth,* Vol. 8, New York, NBER, 1946, pp. 75–118; Edward F. Denison, "Tripartite Discussions of National Income Measurement," in *Studies in Income and Wealth,* Vol. 10, New York, NBER, 1947, pp. 4–22; Morris A. Copeland, Jerome Jacobson, and Bernard Clyman, "Problems of International Comparisons of Income and Wealth," in *ibid.,* pp. 136–59; and Hans Staehle, "The International Comparison of Real National Income: A Note on Methods," *Studies in Income and Wealth,* Vol. 11, New York, NBER, 1949, pp. 223–72.

[5] New York, NBER, 1957.

[6] *Output, Input, and Productivity Measurement,* Princeton University Press for NBER, 1961.

An interest in international comparisons is also reflected in Hollis Chenery's discussion in Volume 31. He comments that

> I suspect that a comparison of the growth of the several inputs and corresponding output in the United States to comparable estimates for other countries may be the best way to acquire better insight into growth policy for the United States itself. The case for intercountry analysis becomes even stronger when we consider substantial departures from patterns of output and mixtures of input that have been experienced in the past. Intercountry analysis therefore becomes essential to the design of growth policies for underdeveloped countries, whose own experience is of very limited value for this purpose.[7]

In planning the present conference, the program committee wanted not only to have papers on theory and measurement, but also to move further in two other directions—to provide papers and discussion on the *uses* of the basic data in economic analysis and public policy and, also, to go below the level of the national aggregates into more *disaggregation.* A number of the committee members working in the area of international comparisons are impressed by the implications of price-quantity interrelations below the aggregative level for analyses of resource allocation, international trade, economic development, and economic growth. A further factor contributing to a program going beyond the primary emphasis on measurement was the limited amount of resources going into the measurement area, compared to the magnitude of the problems, at the time the conference was being planned.

The conference covered in this volume was a lively one for participants, partly because the problems discussed were important and relevant to current problems. At various times the discussions below deal with such topics as problems of economic growth and income differences between countries, economic problems of developing countries and the scope for relative prices in planning for such countries, international trade and specialization, economic integration in Latin America, and comparative productivity levels in the United States and Soviet Russia. Many of these topics are high on the list of relevant and important issues in international economics and public policy.

A second factor in the lively nature of the conference was the

[7] Hollis B. Chenery, "Comment," in Murray Brown, ed., *The Theory and Empirical Analysis of Production, Studies in Income and Wealth,* Vol. 31, New York, NBER, 1967.

diversity in viewpoint of the conference participants. Professor Andreas G. Papandreou, as chairman the first morning, distinguished three viewpoints in the discussion: the classical line of thought, reflected in an interest in and concern for productivity, a contemporary reflection of the historical concern for the struggle of man against nature; the neoclassical viewpoint, reflected in an interest in individual utility and welfare and its relation to social values and a social welfare function; the planners' viewpoint, expressed in the quest for numerical materials in a variety of applied economic problems. These three points of view emerged and were presented with varying intensity at the various conference sessions. The published volume catches some, but not all, of the spirited discussion from the floor.

In the remainder of this introduction, I will briefly outline the main topics treated by the various authors and discussants to convey a little of the flavor of the contents. The papers cover a wide range of topics, and the summary may prove a useful guide, especially to the reader who wishes to pick and choose.

The papers fall roughly into three categories. Sidney Afriat's paper concentrates on the theory of price index comparisons. Dan Usher's comment on Bergson's paper also concentrates on the classical index number problem in the context of both welfare and production comparisons. A second group of papers provides new data on international comparisons. Abram Bergson provides data on comparative national income in the USSR and the United States. The Grunwald-Salazar paper is a progress report on a project for making a comprehensive comparison of prices and national product in Latin America. Barend de Vries provides data on prices of a number of capital goods in the developing and developed countries. A third group of papers concentrates rather more on the uses of national income and price comparisons. This group includes my paper, on the relationship between such data and international trade for industrialized countries, and the paper by Gus Ranis, on shifts in emphasis in the use of relative prices in planning in the developing countries. Both of these papers introduce some disaggregation and deal with the structure of relative prices within the national totals. The Kravis-Lipsey paper also concentrates on disaggregation in relation to substitution between countries as suppliers of goods.

SUMMARIES

Sidney Afriat's paper provides an articulated mathematical exposition of index number theory, starting off with utility theory. His contribution is useful, since it is one of the few at the conference reflecting an explicit emphasis on mathematical reasoning and exposition. It is worthwhile to be reminded of the assumptions made in such comparisons.

This paper led to an active discussion from the floor, not all of which is reflected in the published volume. Ulmer and Kravis discussed the degree to which the key assumptions made in index number comparisons are applicable to both place-to-place and time-to-time comparisons of prices and real income. A number of participants supported Kravis's view that the real differences between these comparisons were empirical, and that there was no essential difference in index number theory between the two sorts of comparison.

The paper by D. J. Daly surveys some of the main uses to which intercountry comparisons are put in economic analysis. Special emphasis is given to its applicability to international trade, and the extent to which the data point up differences in production conditions between countries. The evidence on comparisons between the United States and Canada is used to illustrate the significant contrast in output in relation to labor and other factor inputs beween the two countries. The role of tariffs in the two countries and the degree of variation in effective tariff rates in Canada contribute to the productivity gap by encouraging product diversity and short production runs in Canada. The same points are applicable to other countries as well.

The discussants, Balassa and Bhagwati, agree on the empirical importance of different production conditions in different countries, but there were unresolved differences of opinion about the tests of the Ricardian view of trade using United Kingdom–United States data. The discussants extended the international trade discussion in a number of directions.

Bergson provides comprehensive estimates of comparisons between the United States and the USSR, drawing on some of his own earlier work. The statistical estimates are based partially on the theoretical framework of Moorstein's 1961 *Quarterly Journal of Economics* article.

Bergson concludes that the level of real national product per capita in the USSR in 1955 was about 23 per cent of that in the United States in rubles and 38 per cent in dollars. This would make the Soviet per capita level roughly similar to Italy's in real terms.

In the discussion, Usher argued that the Paasche and Laspeyres index number formulas provide inside limits for price comparisons, and that there is a much wider range of indeterminancy in such comparisons than suggested by Bergson and the prevailing view in the literature. Kenessey considers how comparisons between the USSR and the United States would look if approached from the Soviet viewpoint, and is reassured. Greenslade discusses some of the institutional differences between the two countries and their influences on the problems of measurement.

The Grunwald-Salazar paper is a progress report on their project on Latin American economic integration and on the cooperative research program of comparative studies being coordinated at the Brookings Institution. The differences in prices between countries and the contrasts with official exchange rates are explored, and the methodological questions are discussed. The paper also contains preliminary results.

In their comments, Williams and Mason raise some questions on the scope of the paper and discuss the representativeness of the data, because it pertains to urban areas. They also question some of the interpretations drawn in the paper.

Gus Ranis's paper concentrates on some of the choices facing developing countries, particularly the possible conflict between growth and efficiency. He argues that the efficient allocation of resources over time and space is not the key problem in developing countries. Key questions rather are "how to introduce technological change, how to broaden participation, how to create entrepreneurs, how to create institutional change, and how to induce minimum mobility." In dealing with these questions, he distinguishes between a typical import substitution phase and a subsequent shift from import to export substitution. He illustrates his themes from the experience of Korea and Pakistan.

Although the Ranis paper is short, it created a lively reaction both at the conference and in some comments submitted subsequently. In this volume, Ruggles points out that it is difficult to achieve income redistribution and efficiency simultaneously. Eckstein argues that there is little conflict between the objectives of basic growth and efficiency and gives examples of countries that have grown continuously and rapidly with broad participation in the world market. Bhagwati suggests that the waste from inefficiency can be very large and that the costs of import substitution have sometimes been too high, rather than that import substitution is inherently harmful. Stolper is very critical of the early parts of the Ranis paper, and argues that sound price policies are required for economic growth and the development of an entrepreneurial group.

De Vries's paper moves to price comparisons for a particular industrial group rather than, as in most of the earlier papers at the conference, for the economy as a whole. His paper concentrates on selected capital goods industries, and points up the large contrasts between prices of identical items in the developed and developing countries. Some of these differences can be reduced by changes in government policy, but other factors contributing to higher manufactured goods prices in developing countries are expected to persist, including scarcity of skills, management, and capital; lagging technology; and short production runs.

Felix feels that de Vries's diagnosis of the problem of developing industrial exports is too optimistic. He expects serious adjustment problems if protection is lowered on competitive imports, and deals rather fully with economic developments in Argentina as illustrative of his position. Dorothy Walters also comments on some of the policy implications, including the need to minimize economic loss while recognizing the high priority of job creation and employment.

In the Kravis-Lipsey paper, the authors use new data from *Price Competitiveness in World Trade* for four industrial countries to assess the elasticity of substitution as a variable in world trade. They find the elasticities of substitution lower after 1961 than before, and they identify and discuss a number of explanations for those differences. Some of the possible explanations relate to the recapture of more traditional market shares, factors affecting elasticities of supply and price and income elasticities of demand, and the effect of market shares upon elasticities. In the Comment, Stern raises a number of questions about the theoretical foundation of the measurement procedures, and makes a number of suggestions on future research.

SUPPLY AND COST OF INTERNATIONAL COMPARISON DATA

A number of papers in this volume show how data on international comparisons of prices and real incomes can be and have been used in the economic analysis of a number of applied problems. However, even for developed countries, such as Europe and North America, the range of high-quality and reasonably recent comparisons is still quite limited. When one moves to comparisons between the developed and undeveloped countries, the problems are even more acute, as Dan Usher has illustrated in his comparisons between the United Kingdom and Thailand.

During 1969 new work was initiated by the United Nations on a selected group of developed and developing countries, new resources are being put into comparisons for Europe, and this volume contains new results for Latin America and the Soviet Union. All of these projects have moved forward considerably since 1965, when this conference was first discussed. However, the extent of resources going into such intercountry comparisons is still small, compared, for example, to the regular surveys of price changes within individual countries. Many countries have monthly wholesale and consumer price indexes and quarterly and annual GNP deflators. In many countries indexes of stock prices are recomputed frequently throughout every day, even though the value of stocks traded over a month is typically minute in relation to the total value of stocks outstanding.

What are some of the reasons for the relatively limited range of data on intercountry comparisons? Three considerations seem to be relevant to this question. First, data on intercountry comparisons are *difficult* to obtain. Issues are encountered, including, for example, theoretical aspects of comparability of tastes, practical problems of commodity specification and comparability, and index number problems, that are of far greater quantitative magnitude than anything encountered in time-to-time comparisons for individual countries. Work in this area almost inevitably involves cooperation and coordination of statistical agencies and/or research groups in a variety of countries; and whole new problems of interpersonal, intercultural, and intercountry relations inevitably arise. All of these problems require a substantial amount of professional expertise, time, and patience to resolve. A second general consideration is that the resulting intercountry comparisons can fill a variety of *general purpose uses.* However, many national and international agencies have much more specific interests, and their priorities on data development and analysis reflect this. Third, the intercountry comparisons provide a basis for considered views on *basic and long-range problems.* However, many governments and international agencies get more heavily involved in short-term topics. Even though short-term economic crises, both domestic and international, grow out of longer-range problems and vulnerabilities, resources are frequently not put to the study of longer-range topics ahead of time, and when a short-term crisis develops, it is too late to do the appropriate basic study.

If the conference and this volume widen and deepen the range and degree of support for further work on international comparisons of prices and real incomes, they will have achieved one of the objectives of the conference organizers.