"topical" status. However, this approach leads to a number of fundamental issues not being tackled. They include:

1. The need for a clear articulation of the benefits derived from partnerships and the distribution of these benefits. For instance, there are commercial benefits which will arise from partnership situations between small and large companies and, in the the case of local partnerships, wider social benefits as value added within the local economy.
2. Also, there is evidence that companies are not always best positioned to search for partners, and there is a clear role for public sector or quasi public sector organizations. This suggests that there is market failure that needs addressing. This could have been usefully explored in more depth, particularly given the fundamentally different roles of the private and public sectors. For example, among smaller companies, partnerships often involve a considerable amount of time, and the opportunity cost of that time is high for the small business owner and manager. In part, this is where there is a role for the public sector to assist smaller companies minimize the risk of partnerships by assisting them with an assessment of their feasibility.
3. Another problem is the rather loose definition of the term "partnership." It was perplexing to have presented almost any commercial relationship between the small and the larger company as a "partnership." A partnership would occur where there is a significant, mutual sharing of risks and benefits in a relationship, and clearly there is a point at which the sharing of these risks and benefits moves from the purely arm's length, commercial relationship between two firms into a true, workable partnership. The real question is where does this occur?
4. Increasingly, in the European Community, commercial partnerships are being promoted for wider, political objectives. In many of the EC programs of assistance to companies there is a requirement to form a partnership with a company or organization in another EC member country. This is to promote wider integration and understanding between companies in member countries. To an extent this objective overrides commercial objectives.

Overall, the collection of papers from the conference is an excellent potpourri of research, case studies and material which will assist the reader's understanding of the linkages between small and large companies and how these work. However, it falls short of being a guide to the practitioner or policymaker on where these relationships can be most beneficial, both commercially and for the wider objective of economic development.

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M. Abramovitz, *Thinking About Growth*, Cambridge University Press, 1989. 337 pp. ISBN 0-521-33396-2.

Moses Abramovitz is one of the greatest scholars in our field who combines a sophisticated knowledge of economic theory with the potential for and actual realization of empirical research. In particular, his contribution to growth theory, based on sound, statistical analysis, is highly regarded by the profession. Through the so-called *Abramovitz-residual*, his name will be forever linked to the development of growth theory after World War II. The book under review presents an overview of his papers since the fifties. Several of them are classics, as is his article in *The American Economic Review* of 1956, "Resource and Output Trends in the United States since 1870."

I would like to concentrate my review on Abramovitz's recent contributions and on the lengthy introduction to the present volume. In his opening essay Abramovitz presents an overview of the classical thinking about growth and of Schumpeter's well-known analysis. He goes on to indicate the postwar revival of interest in growth and the response of economics. Three large branches of research have been opened. First, the study of secular development in countries that were already advanced on the path of industrialization and were operating at high level of technology. Abramovitz deals, in particular, with the analytical aspects of the growth process in these market economies. The two other branches are the study of development in poor and in Communist countries.

Abramovitz discusses at length his well-known contribution to the analysis of the so-called *residual*, viz. that part of economic growth that could not be explained by total input per capita but appears to be related to the advance of total factor productivity. Abramovitz introduces the distinction between the Primitive and Final Residual, depending on the factors that identify the rise of factor and productivity, such as technical change and economies of scale. Abramovitz points out that the factors that determine growth do interact. Of importance are, in particular, the interactions between technical change and the accumulation of tangible capital and between technology and the buildup of human capital through education and training. I can only but highly recommend a careful reading of the wise and knowledgeable observations made by Abramovitz.

A feature of utmost importance to Abramovitz's thinking about growth concerns the distinction between the *potential* for productivity growth and the factors governing the realization of that potential. In order to describe the prospects for economic development, I consider the discussions about the factors that determine the potential for economic growth of critical importance. Abramovitz restricts himself in this respect to the potential for technological progress. The difference between the technological potential of leaders and followers in the international arena is the central idea behind his "catch-up hypothesis" that accounts for the tendency of productivity levels to converge. It seems appropriate to quote Abramovitz in full in summarizing his position.

> Insofar as the potential for productivity growth depends on technological opportunity it is governed by latent knowledge and by the gaps between existing and newly emerging best practice. Taken by themselves, their larger gaps give follower countries a relatively strong potential. They tend to enjoy relatively rapid productivity growth rates in a catch-up process that is self-limiting as nations' productivity levels converge. The technological opportunities of different nations, however, vary according to the congruence between their resource endowments and market scales on the one side and the characteristics of technology on the other. They differ also because of the varied limitations on nations' social capabilities. The opportunity for rapid growth afforded by technological backwardness may be offset by social backwardness. Social capability, however, responds in time to technological opportunity and changes also for other reasons, and this puts in question the self-limiting aspect of the catch-up process.

The realization of a country's potentiality depends on conditions that govern the rate of investment in the search for new technology and the adaptation of techniques not fully exploited. Special attention is devoted by Abramovitz to education, both at the lower and higher levels. Education breaks the ground for the process of diffusion of knowledge and the diffusion of applications of new technology. Near the end of his essay, Abramovitz refers to the role of political and economic institutions and the distribution of political power as factors that influence the realization of the potential for growth. One cannot avoid thinking that the analysis could have been even further refined by making the distinction between big and small business.

Let me point out that I strongly admire Abramovitz's essay in which one finds a fine balance of analysis, and empirical facts on a worldwide scale and implications for economic policy. The main drawback seems to be the neglect of the qualitative aspects of economic growth and in particular, the environmental issues. The reader would have liked Abramovitz's knowledge to be directed at the possible contradiction between economic growth in the narrow sense of an increase in per capita income and the quality of life. Let me add here that the paper written by Abramovitz in 1958 on economic goals and social welfare in the next generation also failed to foresee the kinds of problems I just mentioned.

One of Abramovitz's recent papers is about the *catching-up hypothesis*, already referred to. The author uses the idea that, being backward in level of productivity, carries a potential for rapid advance. It enables him to discuss historical evidence, to compare individual countries and to analyze the role of followers and leaders in the growth process. Abramovitz concludes that differences among countries in productivity levels creates a strong potentiality for subsequent, convergence of levels, provided that countries have the social capability to absorb advanced technologies. The institutional and human capital components of social capability develop slowly as education and organization respond to the requirements of the technological opportunities. In this respect one is reminded of the bureaucratic relationships both in public sector organization and in the modern, large, private sector business. It is here that small businesses have a major advance over large, multinational companies in catching up. Only if large scale organizations emphasize decentralization in management and responsibility, are they able to avoid, at least partly, the drawback of being big. Let me conclude by saying that the Abramovitz paper on the catching-up hypothesis remains a stimulating piece of analysis.

In the last two chapters of the book, Abramovitz turns to the welfare analysis of economic growth, without making a clear distinction between analytical statements and his own personal value judgments. He also fails to distinguish between economic theory and economic policy. It is here that one has the feeling that Abramovitz is not very clear in his own mind about the definition of welfare.

On p. 325 he states that welfare not only depends on people's command over goods and services, but also on friendship, love and the like. He seems to overlook that, from the point of view of economic theory, it is the subjective and formal satisfaction of wants, insofar as they depend on the allocation of scarce resources, that matters. If the concept of welfare is restricted to material wants, then economic analysis narrows down to only a subset of economic activity in reality, and if it is made independent of the allocation of scarce resources, economics blows up to an undefined mixture of pieces of analysis, personal opinion and political statements.

In conclusion, Abramovitz is, at his best, in his dealings with growth theory, technical change and empirical research on growth patterns over time and on a worldwide scale. He is less at ease on the tricky ground of welfare theory. However, this feeling by no means threatens our overall judgment that thinking with Abramovitz on economic growth is unique and long-lasting experience.

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E. A. Wrigley, *Continuity, Chance and Change*, Cambridge University Press, 1988. pp. 132, References and Index, ISBN 0-521-39657-03.

Today, we are keenly aware of the importance of hydrocarbon fuels to a modern, industrial society, and that access to these fuels should be available to all countries. We date a sustained increase in output per head and a rising, modern standard of living to the British industrial revolution of the eighteenth century. Large-scale factory production began at that time. Before this, we document a society of essentially small-scale, handicraft production, in tune with nature, but leaving many in society in poverty. After the industrial revolution, poverty was not necessarily the lot of mankind although, without institutions (and politicians) able to take steps to provide a "safety net" for the unfortunate, poverty might still be witnessed.

In his monograph entitled *Continuity, Chance and Change*, Wrigley provided an analysis of an essential ingredient of economic growth, namely, technological change. Wrigley challenged the traditional view of economic change as a unitary process and relates his analysis to economic thought at the time of the industrial revolution. He distinguished between an advanced organic economy, which he believes Adam Smith analyzed, and a mineral-based economy which was the essential element of a dynamic economy and the prime factor of the British industrial revolution. Wrigley suggested that the organic economy and the mineral-based economy overlapped in time and that the industrial revolution should be seen as a two-stage affair. He suggested that the classical economists were very much concerned with the problems of an organic economy but failed to notice the key importance to economic growth of the emergence of a mineral-based economy.

Two strategic elements in Adam Smith's growth analysis have been singled out: the division of labor and capital accumulation. Many economists believe that discussion of the "division of labor" can serve as a metaphor for the process of mechanization of invention. At first, Smith's elaboration of the virtues of the division of labor suggests enhanced efficiency and increased productivity.

Specialization of function would increase dexterity, save time in carrying out activities and