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Abstracts

How High Are the Giants' Shoulders: An Empirical Assessment of Knowledge Spillovers and Creative Destruction in a Model of Economic Growth

RICARDO J. CABALLERO AND ADAM B. JAFFE

The pace of industrial innovation and growth is shaped by many forces that interact in complicated ways. Profit-maximizing firms pursue new ideas to obtain market power, but the pursuit of the same goal by others means that even successful inventions are eventually superseded by others; this is known as *creative destruction*. New ideas not only yield new goods but also enrich the stock of knowledge of society and its potential to produce new ideas. To a great extent, this knowledge is nonexcludable, making research and inventions the source of powerful spillovers. The extent of spillovers depends on the rate at which new ideas outdate old ones, i.e., on the endogenous technological *obsolescence* of ideas, and on the rate at which knowledge *diffuses* among inventors. In this paper we build a simple model that allows us to organize our search for the empirical strength of the concepts emphasized in the preceding. We then use data on patents and patent citations as empirical counterparts of new ideas and knowledge spillovers, respectively, to estimate the model parameters. We find estimates of the average annual rate of creative destruction in the range of 2–7% for the decade of the 1970s, with rates for individual sectors as high as 25%. For technological obsolescence, we find an increase over the century from about 3% per year to about 12% per year in 1990, with a noticeable plateau in the 1970s. We find the rate of diffusion of knowledge to be quite rapid, with the mean lag between one and two years. Last, we find that the potency of spillovers from old ideas to new knowledge generation (as evidenced by patent citation rates) has been declining over the century; the resulting decline in the effective public stock of knowledge available to new inventors is quite consistent with the observed decline in the average private productivity of research inputs.

Can Communist Economies Transform Incrementally? The Experience of China

ALAN GELB, GARY JEFFERSON, AND INDERJIT SINGH

The paper analyzes the structure and phasing of China's reform programs since 1978, evaluates China's economic performance in a comparative context, and assesses the causal relationships between reforms and performance. It concludes that China's economic performance has indeed been very strong, comparable with the rapidly growing economies of East Asia. Its economy has responded positively to reforms, even though these have been partial and are still incomplete in many respects, notably in the area of property rights. Marketization, management contracting, and increased autonomy have raised the productivity of state enterprises, but the response has been largest in the so-called "nonstate" sector, which is characterized by harder budget constraints, high rates of entry and exit and considerable domestic and international competition, and which has also benefited from the "open door" policy. However, some core issues of reform socialism—state ownership of industry, excessive demands for credits and subsidies by enterprises and inadequate autonomy and accountability in the financial sector, and the macro-imbalances that result from them—remain problematic and are similar to those experienced in Eastern Europe and the FSU. These effects have been muted so far in China, because of other factors such as the rapid growth and financial deepening of the economy, but the cushioning effect of these factors is limited. The paper concludes that, while the reforms have had a favorable effect, China's growth momentum is probably not sustainable without deeper enterprise and financial reforms, and that these will inevitably require further clarification and privatization of property rights. The paper concludes by considering the political context of fast and slower reform strategies, which is seen as fundamental, and which must be borne in mind when seeking to extract lessons from China's experience for other transitional economies.

On the Political Economy of Labor Market Flexibility

GILLES SAINT-PAUL

This paper starts from the observation that despite the very high level of unemployment in major European countries, the resources devoted to fight it are very small. This suggests that there is little political concern about high unemployment. I develop a model where the government tries to increase employment by increasing labor market flexibility, and where any reform must pass majority voting. It is shown that the employed will block a complete reform of the labor market. A two-tier system will, however, generate consensus over the reform. In the long-run, when the two-tier system prevails, political support gradually builds up in favor of further increases in flexibility. This, however, creates a time-consistency problem, thus putting bounds on the reform that can

ex-ante be implemented. The model may generate complementarities between the economic system and the political system and lead to multiple equilibria. I also review various pieces of evidence, which lend support to the hypotheses brought up in the paper.

The Macroeconomics of War and Peace

R. ANTON BRAUN AND ELLEN MCGRATTAN

This paper examines the effects of government purchases on economic activity. By focusing on the two world wars, we are able to isolate the effects of government purchases on GNP, its principal components, and the labor market. We document the British and U.S. wartime experiences and use these observations to assess the predictions of neoclassical growth theory. We show that the data can be reconciled with neoclassical theory if the effects of conscription and government investment are explicitly modeled. The theory accounts for a significant fraction of the change in GNP and its components during the war. The theory also predicts the observed patterns in hours and productivity.

Economic Instability and Aggregate Investment

ROBERT S. PINDYCK AND ANDRÉS SOLIMANO

Recent literature suggests that because investment expenditures are irreversible and can be delayed, they may be highly sensitive to uncertainty. We briefly summarize the theory, stressing its empirical implications. We then use cross-sectional and time-series data for a set of developing and industrialized countries to explore the relevance of the theory for aggregate investment. We find that the volatility of the marginal profitability of capital—a summary measure of uncertainty—affects investment as the theory suggests, but the size of the effect is moderate and is greatest for developing countries. We also find that this volatility has little correlation with indicia of political instability used in recent studies of growth, as well as several indicia of economic instability. Only inflation is highly correlated with this volatility and is also a robust explanator of investment.

U.S. Commercial Banking: Trends, Cycles, and Policy

JOHN H. BOYD AND MARK GERTLER

This paper pinpoints sources of recent problems in U.S. commercial banking. The objective is to provide a context for evaluating policy options. There are three parts. The first documents how increased competition and financial innovation made banking less stable in the 1980s. The second part identifies the specific sources of the industry's difficulties over this decade. We find that the poor ex post performance by large banks provided the main stress on the sys-

tem. From a variety of evidence, we conclude that this poor performance was the product of increased competition for the industry and a regulatory system that provides greater subsidies to risk taking by large banks relative to the industry mean. The third part analyzes recent policy reforms and ongoing policy options, in the light of our evidence on the main sources of problems in banking.