



# Entrepreneurship and productivity: The slow growth of the planned economies

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## ABSTRACT

Trends in gross domestic product (GDP) and total factor productivity (TFP) growth in the former socialist economies seem to indicate that these economies were converging to unusually low long-run growth rates in the late 1980s. In this paper we develop an endogenous growth model of entrepreneurship that is able to account for the difference in long-run performance between centrally planned economies and market-oriented ones. Long-run growth rates of output and productivity are determined by the growth of the stock of managerial knowledge, which in turn depends on the share of the population involved in entrepreneurial activities and on the time that spent on those activities. We analyze the effect of two characteristics of centrally planned economies on their growth performance. First, in centrally planned economies factors of production are distributed by the central planner to the firms' managers through a contest that uses up some of the managers' productive effort. Second, the leadership is "egalitarian," in the sense that it treats individuals with different abilities equally. We show that these two features reduce the fraction of people becoming entrepreneurs/managers, as well as their managerial effort, which in turn reduces long-run output and TFP growth. Furthermore, we find that centrally planned economies have lower income inequality and slightly higher capital–output ratios, which is consistent with these countries' experiences.

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... there are a variety of roles among which the entrepreneur's efforts can be reallocated, and some of those roles do not follow the constructive and innovative script that is conveniently attributed to that person ... How the entrepreneur acts at a given time and place depends heavily on the rules of the game—the reward structure in the economy—that happens to prevail.

(Baumol, 1990, p. 894)

## 1. Introduction

One of the intriguing aspects of the 20th century's experiments in central planning is the decline over time in the economic performance of socialist economies relative to their more market-oriented, and usually more developed, contemporaries. This economic decline was widespread and significant, and may have contributed to the collapse of the Soviet system (Easterly and Fisher, 1995). Table 1 shows real per capita growth rates for several socialist countries during the

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**Table 1**

Growth rates of real per capita output (percent).

	1950–1960	1960–1970	1970–1980	1980–1988
USSR, GNP <sup>a</sup>	5.7	3.9	3.6	1.2
USSR, NMP	8.2	6.3	4.6	2.8
Czechoslovakia, Hungary, Poland & Yugoslavia, NMP <sup>b</sup>	6.4	4.8	4.5	0.9
Cuba, GMP <sup>c</sup>		0.7	5.2	2.7
USA, GDP <sup>d</sup>	1.7	2.9	2.1	2.5

<sup>a</sup> GNP and NMP growth rates from Easterly and Fisher (1995), population growth rates calculated from data in Mitchell (1992). Last period covers 1980–1987.

<sup>b</sup> Based on calculations from data in Mitchell (1992). Average growth rates are unweighted.

<sup>c</sup> GMP is Gross Material Product. Madrid-Aris (1997).

<sup>d</sup> Bureau of Economic Analysis.

postwar period. By the 1980s the Soviet Union's growth rate, computed using both Western estimates of Soviet GNP and official (Soviet) figures of net material product (NMP), was less than half that of the U.S. and falling.<sup>1</sup> The growth experience of Eastern European countries mimics that of the Soviet Union, but at even lower rates. For the case of Cuba, Madrid-Aris (1997) estimates Cuba's growth rate of gross material product (GMP) per capita in the period 1980–1988 to be 2.7 percent, despite Soviet subsidies that had reached 30 percent of GMP by the 1980s. In the latter half of that period, before the collapse of the Soviet Union and the end of its subsidies, growth had fallen to 0.3 percent.

More importantly for our work, the same pattern of decline is also seen in total factor productivity (TFP) growth. Bergson (1989) calculated that TFP growth for the Soviet Union declined from 1.87 percent in the 1950s to 1.51 percent in the following decade, and to 0.11 percent in the period 1970–1975. Using Western data Easterly and Fisher (1995) obtain similar results, with TFP growth turning negative at –0.2 percent for the period 1980–1987. For Cuba, Madrid-Aris (1997) finds that TFP growth went from 1.0 percent during 1963–1970, to 0.8 percent in 1971–1980, and then fell sharply to –1.7 percent during 1981–1988. While it is easy to think of reasons why centrally planned economies should be less productive than market-oriented ones, the apparent convergence of these countries to unusually low long-run growth rates is harder to explain.

In this paper we analyze the effect of central planning on long-run balanced growth paths. We focus on two main characteristics of centrally planned economies that differentiate them from decentralized economies: (i) the lack of decentralized markets for productive inputs, with the leadership (or central planner) acting as the supply mechanism for enterprises (Roberts, 1990), and (ii) the pursuit of policies by the leadership that result in a more egalitarian distribution of income. We consider an endogenous growth framework where the TFP level is a function of the stock of managerial (entrepreneurial) knowledge in the economy which, in turn, is a function of the overall managerial effort. We adapt the model of entrepreneurship in Murphy et al. (1991), which in turn builds on that of Lucas (1978). We consider a model economy with infinite lived individuals who differ in their level of entrepreneurial ability. Individuals with high ability become entrepreneurs, and those with low ability become production workers. In the decentralized framework, the resources that each entrepreneur gets are determined by the market. In the centralized economy, where the government owns and distributes all resources, managers (the equivalent to entrepreneurs in a decentralized society) need to spend time lobbying the central planner to obtain inputs for their enterprises. This reduces the amount of time devoted to productive activities and, thus, reduces output. Even if the government distributes output in an “efficient” way (that is, in a way that distorts individuals' decisions the least, compared to the decentralized economy), the reduction in production effort translates into a reduction in the rate of accumulation in the stock of managerial knowledge. We call this mechanism the “lobbying effect.” Furthermore, as centralized economies tend to seek a more egalitarian distribution of income, the behavior of individuals is distorted further by reducing their incentives to become entrepreneurs, reducing managerial effort even more. We call this effect the “redistribution effect.”

Our work is related to papers in the literature that deal with the growth patterns of centrally planned economies. Roberts and Rodriguez (1997) analyzes the high growth rates achieved by centrally planned economies in the initial periods. They model the leadership as a self-interested central planner who owns all capital and maximizes a discounted stream of unproductive state consumption. Brixiová and Bulíř (2003) explain the growth slowdown of the centrally planned economies as a failure to provide incentives for eliciting high effort from managers of enterprises. These papers differ from ours in several important aspects. First, they focus on different sources of inefficiency created by the leadership. Second, and more importantly, the differences in growth rates between decentralized and centralized economies are simply a temporary phenomenon of the transition to new steady states. Both papers are silent about possible long run discrepancies among decentralized and centrally planned economies.

The paper is organized as follows: Section 2 presents the decentralized framework and characterizes the balanced growth path of our model economy. Section 3 describes the centrally planned economy, characterizes its balanced growth path, and develops a framework for comparing the balanced growth paths of decentralized and centralized economies. In Section 4

<sup>1</sup> NMP does not include consumer services.

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