ECONOMIC SELECTION AND THE ROLE OF GOVERNMENT: SOME LESSONS FROM EVOLUTIONARY BIOLOGY

John M. Gowdy

Introduction

A major implicit assumption underlying the neoclassical view of economic change is that it is driven solely by competitive selection. In this view, if the economic world is left to "natural" forces competitive processes will result in the selection of the most "fit" economic agents. Economic evolution proceeds by the progressive selection at the margin of more and more efficient techniques. This implies that the existing array of firms and production techniques are there because they have won out in the struggle for existence.

This world view has far-reaching implications for government policy. The policy recommendations of most economists, even those least wedded to a rote market ideology, are based on notions of natural selection. Economic policy makers strive to insure a "level playing field" by smoothing out imperfections in the market so that economic selection will proceed in a "natural" manner. Industrial policy and other forms of economic planning are opposed on the grounds that they will give some firms an unfair advantage thereby distorting incentives and insuring an inefficient outcome. Economists have such an antipathy to government involvement in the economy, in part, because of the belief that it interferes with the progressive drive toward increased efficiency through time. Even though it is (almost) universally conceded that the market works imperfectly, there is a general feeling that government interference will make the selection process more inefficient and economic adaptation to changing conditions more difficult. In the Reagan and Bush years United States macroeconomic policy has relied almost entirely on market forces.

Drawing on current controversies in evolutionary biology it is argued here that economic change is also driven by forces other than competitive selection (Gowdy 1990, 1991a, 1991b, 1992). Economic success may result from chance, from successful cooperation, or simply from being first on the scene. Economic success may also result from the private appropriation of common property environmental goods. To the extent that economic survival is determined by processes other than competitive selection, antipathy to government intervention in the economy may be unwarranted. By ignoring other determinants of economic survival we are denying a role for the government in many cases in which enlightened intervention may be beneficial.
Natural Selection in Economic Theory

In contemporary theories of economic change, even in the evolutionary models of Nelson and Winter (1982), change is driven by competitive selection, a process analogous to natural selection in biology. In these models all economic change is gradual, and progressive in the sense that competitive pressure generates alternatives in the form of new firms and new techniques, and that selection among them leads to greater efficiency through time. These models are based on a notion of evolution through competition which ensure that the "fit" prosper and the "unfit" do not. This view is stated succinctly in a recent application of a standard model by Geroski (1989, p. 572):

> It is widely believed that competition promotes efficiency, that a vigorous competitive process throws up alternatives in the form of new firms and new ideas, and that selection amongst them induces movements to, and movements of, the production frontier.

The standard view, even if not explicitly stated, is that the existing array of firms and production techniques are there because they have won out in the competitive struggle for existence. The notion of marginal change drives economic thinking as well as traditional views of biological evolution. The concept of economic evolution implicit in the neoclassical theory of the firm is analogous to the Darwinian synthesis in biology (Gowdy 1991a, 1991b). Marshall adopted Darwin's motto "Natura non facit saltum" (nature does not make leaps) for the frontispiece of his Principles of Economics. Marshall viewed economic change, as does contemporary economic theory, as gradual and progressive.

Interestingly, although the phrase "survival of the fittest" is widely accepted by economists it is a source of embarrassment to biologists. Neoclassical theory is widely criticized as being based on 19th century physics (Wilbur and Harrison (1978), Mirowski (1989)). It is less well-known that it is also based on outmoded models of biological evolution.

Current Controversies in Evolutionary Biology

For some years now controversy has raged among evolutionary biologists as to the role of Darwinian selection in biological evolution. According to the "Modern Synthesis" in evolutionary biology, the wedding of the theory of natural selection and modern genetics, evolution proceeds by smooth, gradual changes. Through eons these changes add up to major changes in phenotype, resulting in new species, genera, and families. In the 1970s this view was challenged by a group of paleontologists who argued that the fossil record was characterized by "punctuated equilibria." The history of particular species, they argued, is characterized by long