Inequality of Opportunity and Inequality of Effort: a Canonical Growth Model

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Theoretical and empirical studies exploring the effects of income inequality upon growth reach a disappointing inconclusive result. Several recent papers has emphasized that one reason for this ambiguity is that income inequality is actually a composite measure of inequality of opportunity (IO) and inequality of returns to effort (IE). More concretely, these different types of inequality affect growth through opposite channels, so the relationship between inequality and growth depends on which component is larger. Using the PSID database for U.S. in 1970, 1980 and 1990, Marrero and Rodriguez (2010) found robust support for a negative relationship between inequality of opportunity and growth, and a positive relationship between inequality of returns to effort and growth. Based on this result, we build a discrete time economy with a continuum 1 of dynasties, of human capital formation and wage determination. This model attempts, among other things, to explain how IO and IE are (endogenously) determined, how they are related and how they can affect subsequent long-run growth and long-run income distribution.

One key issue of the model is that the effort needed for an individual to become a skilled worker depends inversely on their initial socio-economic conditions and talent. The former depends greatly on the education level of the parents, which can affect their own level of education in several ways. A direct way is through resources devoted to the education of their children, but also to what is called a home-external effect, which is that high educated parents offer their children with a better environment to accumulate human capital. The indirect way (global externality) is through its effect on the average level of human capital and thus over global productivity and salaries, which might increase the return of their children's human capital accumulation. Moreover, the return of this effort (i.e., the amount of human capital accumulated given a level of effort) also depends on these factors that are beyond the individual's control. The model is a simple one, but it shares main predictions of the imperfect capital markets constrains models a la Galor and Zeira (1993).

We find implicit expressions of the dynamics of human capital accumulation and prove the existence of stable equilibrium. We solve the dynamics numerically and compare the evolution of total inequality, IO and IE for different dynasties: good initial circumstances and low talent; good initial circumstances and high talent; bad initial circumstances and low talent; bad initial circumstances and high talent. We want to emphasize their differences in order to understand the key features behind the IO and IE determination. Finally, for the aggregate economy, we want to characterize the relationship between growth, inequality, IO and IE, given different initial scenarios: high initial IO and low initial IE; high IO and low IE; low IO and high IE; low IO and low IE.