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Intergenerational mobility, sibling inequality and borrowing constraints

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Abstract

This paper studies differences in social mobility between rich and poor families. The paper shows that borrowing constraints retard social mobility among the poor by preventing poor parents from investing optimally in the their children's human capital. This evidence contradicts several recent studies that argue that innate ability is the overriding determinant of socioeconomic performance in the United States. The paper also shows that sibling inequality appears to be independent of parental wealth, which in turn contradicts the predictions of various economic models of resource allocation within the family. © 2002 Elsevier Science Ltd. All rights reserved.

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1. Introduction

If one were to summarize the main message of the massive scientific literature dealing with family influences, a single line would suffice: it pays to choose one's parents. This makes an obvious point: good parents are an unquestionable advantage in the quest for socioeconomic success. Less obvious is the question as to what parental characteristics have the greatest effect on children's outcomes. A short list would have to include parental wealth, family connections, parental teachings and genetic traits.

This paper studies the connection between parental wealth and children's earnings within the framework provided by Becker and Tomes (1986). These authors postulate an obvious mechanism through which parental wealth influences children's earnings. The crux of the argument is well known: if parents are not allowed to

borrow against their children's earnings, poor parents will be unable to invest optimally in their children's human capital. This inability will in turn depress the earnings of poor children vis-à-vis rich children with the same ability and will retard social mobility among the poor.

I show in this paper that — as predicted by the Becker–Tomes model — earnings regress to the mean at slower rates for those families who lack enough funds to optimally invest in human capital. This finding is especially important in light of Mulligan's (1997) recent claims that borrowing constraints do not appear to be an important determinant of intergenerational mobility in the United States. I show that Mulligan's empirical results are not robust to small changes in his empirical strategy, thus casting serious doubts on his main findings and his policy recommendations.

If coupled with a few assumptions about parental preferences, the Becker–Tomes model also yields testable implications about the difference in sibling earnings inequality between rich and poor families. Wealthy parents in the model invest the wealth-maximizing amount of human capital in each child, which implies that human

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capital investments will be disproportionately concentrated on the ablest of the children. While this will exacerbate earnings' differences among their children, no fairness issues will arise because wealthy parents can mitigate the differences in earned incomes with financial transfers. By contrast, poor parents in the model are unable to use transfers to alleviate earnings differentials, and hence they face a trade-off between equity and efficiency. It follows that if poor parents take into account equity considerations when deciding how much to invest in each of their children, the Becker–Tomes model implies that sibling earnings inequality will be on average smaller among poor families.

I test the aforementioned prediction of the Becker–Tomes model using two different data sets. I find no differences in sibling earnings inequality between rich and poor families. The causes of this alleged failure of the Becker–Tomes can be traced back to the specification of parental preferences. The different options that will render the model consistent with the intragenerational evidence are thoroughly discussed in the last section of the paper.

The organization of this paper is as follows. Section 2 sketches the Becker–Tomes model. Sections 3 and 4 present the empirical evidence concerning the intergenerational and intragenerational predictions of the model, respectively. Finally, Section 5 discusses the most salient aspects of the results.

2. The Becker–Tomes model

The Becker–Tomes model is the paradigmatic economic model of both the intergenerational transmission of inequality and the allocation of resources within the family. In the model, parents are assumed to be altruistic toward their children. Parents are also assumed to pass on endowments to their children at no cost. Endowments include cognitive ability, physical appearance, attitudes, family “connections”, and in general all traits (both genetic and cultural) that affect children's earnings. In the simplest version of the model, all relevant endowments are summarized in a one-dimensional magnitude (E) that is transmitted from parents to children according to the following Markov process:

$$E_{t+1} = d + hE_t + v_t \quad (1)$$

where E_t and E_{t+1} are the endowments of parents and children respectively, v_t is the random component of the transmission process, and h represents the “inheritability” of endowments.

While by assumption parents cannot invest in their children's endowments, they can purposefully affect the incomes of their children by both investing in their children's human capital and transferring financial assets to them. Earnings and financial transfers from parents are

the sole sources of income in the model. Consequently, the adult income of a representative child will be given by

$$I_{t+1} = H(x_t, E_{t+1}) + (1+r_t)B_t, \quad (2)$$

where H are earnings (the returns to human capital), x_t are parental expenditures in human capital, B_t are financial transfers by parents, and r_t is the economywide rate of return of financial assets.¹ Barring financial constraints, parents will invest the wealth-maximizing level of human capital in each child.

Two different types of families can be distinguished in the model: non-capital-constrained families (or “rich” families) who invest the wealth-maximizing level of human capital and make financial transfers, and capital-constrained families (or “poor” families) who fall short of the optimal investments in human capital and do not make transfers.

2.1. Intergenerational transmission of earnings

As shown by Becker and Tomes (1986) and Mulligan (1997), the intergenerational transmission of earnings differs between “rich” and “poor” families. For “rich” families, earnings of parents and children are indirectly linked through the inheritability of endowments. In particular, earnings are transmitted across generations of “rich” families according to

$$\ln H_{t+1} = C + h \ln H_t + \varepsilon_t \quad (3)$$

where C is a complicated constant, ε_t is a first-order moving average process, and h is the degree of inheritability of endowments. For “poor” families, however, there is a direct connection between parental earnings and children's earnings. In particular, earnings are transmitted across generations of “poor” families according to

$$\ln H_{t+1} = C + (\beta + h) \ln H_t - \beta h \ln H_{t-1} + \varepsilon_t \quad (4)$$

where H_{t-1} are earnings of grandparents. A comparison of Eqs. (3) and (4) reveals that earnings regress to the mean at slower rates for “poor” families than for “rich” families. Assuming that there is no “market luck” (i.e., ε_t is white noise), the first-order autocorrelation coefficient implied by Eq. (4) is $(\beta + h)/(1 + \beta h)$, while the coefficient implied by Eq. (3) is h . The former will be higher than the latter as long as $\beta > \beta h^2$, which will hold as long as the inheritability of endowments is less than perfect.

The excess of sensitivity of children's earnings to parental earnings in “poor” families can be interpreted as a measure of inequality of opportunity. If there was equal

¹ We will assume diminishing returns to human capital investments and higher returns for most able children.

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